

# California

# MEDICINE

**APRIL, 1948**

RADICULAR PAIN IN THE UPPER EXTREMITY, John B. Doyle, Los Angeles.....	255
DEGENERATIVE LESIONS OF THE SHOULDER AS A CAUSE OF PAIN, Alonzo J. Neufeld, Los Angeles.....	259
PSYCHOSOMATIC CONSIDERATIONS IN GASTROENTEROLOGY, Lester M. Morrison, Los Angeles.....	261
BREAST CANCER IN MICE, Michael B. Shimkin, San Francisco.....	264
WHAT ARE THE BASIC NEEDS FOR PUBLIC HEALTH IN CALIFORNIA? Dwight M. Bissell, San Jose.....	270
PSYCHOGENIC RHEUMATISM: THE MUSCULOSKELETAL EXPRESSION OF PSYCHONEUROSIS, Edward W. Boland, Los Angeles.....	273
THE SECTION ON GENERAL PRACTICE—PROBLEMS, GOALS, RESPONSIBILITIES, E. A. Royston, Los Angeles.....	280
DIVERTICULOSIS AND DIVERTICULITIS OF THE COLON, Robert W. Quinn, New Haven.....	283
SURGICAL TREATMENT OF THE HORSESHOE KIDNEY, Franklin Farman, Whittier.....	286
THE RELATION OF THE PRIVATE PHYSICIAN TO THE CANCER CONTROL PROGRAM, Lyell C. Kinney, San Diego.....	288
CASE REPORTS:	
PENICILLIN RESISTANT CASES OF SUBACUTE BACTERIAL ENDOCARDITIS SUC- CESSFULLY TREATED WITH MASSIVE DOSAGE, Raymond D. Goodman, Louis J. Fisher, Donald E. Griggs, Los Angeles.....	292
STREPTOMYCIN TREATMENT OF TUBERCULOUS TRACHEO-BRONCHITIS, Emil Bogen, San Fernando, and Lyman A. Brewer, III, Los Angeles.....	295
LATENT MALARIA, Edmund E. Simpson, Sacramento.....	295
FRIEDREICH'S ATAXIA WITH UNUSUAL HEART COMPLICATIONS, Walter W. Ellwood, Glendale.....	296
CLINICAL SYMPOSIUM, TREATMENT OF HYPERTENSION.....	299
CALIFORNIA CANCER COMMISSION STUDIES:	
CANCER OF THE LARYNX, Simon Jesberg, Los Angeles.....	303
CARCINOMA OF THE LUNG, John C. Jones, Los Angeles.....	305
<hr/>	
EDITORIALS .....	308
CALIFORNIA MEDICAL ASSOCIATION.....	312
NEWS AND NOTES.....	321
INFORMATION .....	323
BOOK REVIEWS .....	325

OFFICIAL JOURNAL  
OF THE CALIFORNIA MEDICAL ASSOCIATION



**Sulfadiazine Dulcet Tablets,**  
0.15 Gm. and 0.3 Gm.

**Sulfathiazole Dulcet Tablets,**  
0.3 Gm.

**Sulfamerazine Dulcet Tablets,**  
0.3 Gm.

**Diazoline® Dulcet Tablets,**  
0.3 Gm. (Compound Sul-  
fadiazine, 0.15 Gm. and  
Sulfathiazole, 0.15 Gm.,  
Abbott)

*Specify*

*Dulcet Tablets*

(Medicated Sugar Tablets, Abbott)

... three reasons why a child likes candy—the same three reasons why a sick child will readily accept a *Dulcet* Tablet, the accurately medicated sugar tablet that resembles delicious candy in appearance and taste. • Children think *Dulcet* Tablets are candies, and seemingly enjoy every dose—even when the tablets are medicated with such potent drugs as the sulfonamides. *Dulcet* Tablets containing these agents are standardized and will produce the same therapeutic results as other tablet forms, when used at the same level of dosage. • Whichever compound you desire—sulfadiazine—sulfathiazole—sulfamerazine—or the new mixture, Diazoline—you will find it available at your prescription pharmacy in *Dulcet* Tablet form. On your next prescription for a child patient, be sure to specify *Dulcet* Tablets. ABBOTT LABORATORIES, NORTH CHICAGO, ILL.

# California M E D I C I N E

OFFICIAL JOURNAL OF THE CALIFORNIA MEDICAL ASSOCIATION

© 1948, by the California Medical Association

VOL. 68

APRIL, 1948

NO. 4

## Radicular Pain in the Upper Extremity

JOHN B. DOYLE, M.D., *Los Angeles*

THE problem of radicular or root pain continues to intrigue practitioners of medicine. It is of particular importance to the internist, the orthopedist, the neurologist and the neurosurgeon. With the knowledge that has accumulated in the past 13 years about syndromes due to abnormal states of the intervertebral discs,<sup>4</sup> root pain has evoked new interest and concern. The contribution of Semmes and Murphy<sup>6</sup> concerning unilateral rupture of the cervical intervertebral discs served to focus attention on a group of cases that have proved difficult to manage, and afforded explanations of certain clinical phenomena that had previously been subjects for widespread differences of opinion.

Many questions remain to be answered, however, about certain syndromes of which radicular pain in the upper limbs is an essential presenting symptom. There are those cases of pain in the shoulder, arm, or forearm, in which thorough studies reveal no objective evidences of disease; cases with lesions of the tendon cuff of the shoulder in which, in addition to pain in the shoulder and arm, there is root pain in the lower posterior cervical region and forearm, with or without paresthesias such as numbness or tingling in the tips of the thumb and fingers; cases in which there are abnormal roentgenologic or neurologic findings in conjunction with root pain which resolves satisfactorily after conservative treatment; and finally, cases in which demonstrable protrusion of nuclear material from a disc occurs. It is to cases of these sorts that this paper is devoted.

### ANATOMICAL CONSIDERATIONS

The bodies of the cervical vertebrae differ in certain respects from the others. Instead of being cylindrical in shape they are oblong, the transverse

diameter being much longer than the anteroposterior. The pedicles or roots of the vertebral arches spring from the posterior half of the lateral aspects of the body, extend posteriorly and fuse with the laminae which converge posteriorly to enclose the vertebral canal. Binding together the laminae of the adjoining vertebrae are the ligamenta flava.

The vertebral canal is larger than in the thoracic or lumbar region, and is triangular or more nearly semilunar in outline. Where the pedicles and laminae join, cylindrical masses of bone project upward and downward to support the superior and inferior articular processes. The bone is so sliced away that the superior articular facets are directed upward and backward and the corresponding inferior surfaces are turned downward and forward. The apophyseal joints which are formed in this way are provided with complete but very thin-walled articular capsules lined with synovia. Corresponding to the freedom of movement of the neck, these capsules are thinnest and loosest in the cervical region.

Lying between the bodies of the vertebrae are the intervertebral fibrocartilages or discs. In the region between the third and seventh cervical vertebrae they are thinner than in any other portion of the spine. The superior and inferior surfaces of the discs are closely adherent to the epiphyseal plates of the adjoining vertebrae. The circumferential portion or annulus fibrosus, formed chiefly of parallel fibers running from one vertebra to the other, completely encloses the nucleus pulposus, which is composed of the remnant cells from the notocord and a semi-gelatinous matrix containing 75 to 90 per cent water.<sup>1</sup>

Each nerve root emerges from an intervertebral foramen which is bounded anteriorly by an intervertebral disc and by the bodies of the adjoining vertebrae, posteriorly by the capsules surrounding the intervertebral joints and above and below by the inferior and superior notched borders of the pedicles.

Read before a Joint Meeting of the Sections on Neuro-psychiatry, Industrial Medicine and Surgery and Radiology at the 76th Annual Session of the California Medical Association, Los Angeles, April 30-May 3, 1947.

## CLINICAL CONSIDERATIONS

Radicular pain arises from irritation of a sensory or posterior nerve root. The sensory root extends from the pia mater of the spinal cord to the outer aspect of the corresponding intervertebral canal, the spinal ganglion lying in the foramen. The roots of the nerves may be involved in the subarachnoid space or in the intervertebral canal. While both the motor and sensory roots are usually involved, sensory symptoms are more common and conspicuous, the constant feature being pain.<sup>8</sup> In turn, the swelling which often accompanies or follows compression of the nerve tends to aggravate and perpetuate the initial symptoms. It must be emphasized that the sensory fibers derived from a single posterior nerve root are not the exclusive source of innervation to any region, and that the sensory distribution of any given nerve root does not conform to that of any peripheral nerve since peripheral nerves are composed of fibers derived from two or more nerve roots.

From these data it is apparent that pathologic conditions of the body or pedicles of a vertebra, or the overlying periosteum, arthritic changes in an intervertebral articulation, rupture of an annulus fibrosus of an intervertebral disc, with or without extrusion of the nucleus pulposus, and disease of the ligaments may result in the development of syndromes characterized in great part by radicular pain.

## CASE REPORT

**CASE 1.** While playing golf, a 43-year-old man suddenly noted a pain in the upper part of the right interscapular area which became more pronounced the next day and was not relieved by osteopathic adjustment. The pain radiated down the lateral aspect of the right arm and forearm to a level a short distance above the wrist. It was an agonizing, constant, dull ache, worse in the evening, less bothersome while he was at work, and relieved by walking. Within a day or two after the onset of pain, numbness developed in the terminal phalanges of the second and third digits of the right hand.

On the fourth day of the illness there was restricted motion of the neck. The pain had begun to be aggravated by extension of the head and neck. Roentgenograms of the cervical portion of the spine revealed slight hypertrophic osteoarthritic changes anteriorly along the lower margin of the fifth cervical vertebral body. On the tenth day the patient was admitted to the hospital after physical therapy had not relieved his discomfort. On the eleventh day the pain was so severe that he repeatedly left the bed and paced the floor for relief.

A neurologic examination made the following day was negative. On the assumption that the underlying pathologic process involved the periosteum and the apophyseal joints and ligaments adjoining the right intervertebral foramen between the fifth and sixth cervical vertebrae, absolute rest in bed and traction were instituted. Fairly prompt relief followed.

## CASE REPORT

**CASE 2.** In November, 1943, a married woman 49 years of age began to suffer from "terrific pain" in the left shoulder that awakened her from sleep almost nightly for the ensuing three or four months. The pain, which was of aching character, radiated from the shoulder to the lower posterior cervical region, over the scapula and down the lateral aspect of the arm to the elbow, and later into the radial half of the forearm. Cold damp weather and especially motion of

the joint aggravated the pain. About a month afterward numbness appeared in the distal phalanges of the second and third fingers. Toward the middle of February, 1944, the patient became unable to button her clothes in the back with her left hand.

The left arm was carried by the side. Moderate limitation of the shoulder, particularly in abduction and external rotation, was noted, with slight atrophy of the musculature of the left scapula and shoulder. There was point tenderness over the anterolateral aspect of the shoulder. The tendinous reflexes of the upper and lower limbs were elicited with some difficulty but were equal on the two sides. No impairment of common or deep sensation could be demonstrated. There was no limitation of motion of the neck nor tenderness over the cervical portion of the spine. Roentgenograms of the cervical spine and of the left shoulder were negative. Physical therapy, including heat, massage and passive movement, was initiated on February 25, 1944. At that time the patient began a program of daily exercises which has been continued to the present. Within a short time the pain began to diminish gradually in severity. The paresthesias left by degrees. By May 5, 1944, the pain had markedly diminished. Abduction of the left shoulder was possible to the extent of 75 degrees. Anteriorly the arm could be raised to 90 degrees. With difficulty the patient could reach the back of her neck and waist. After an operation for fistula in ano, in September, 1944, the pain left. On December 5, 1944, there was still slight limitation of abduction and external rotation of the left shoulder. Roentgenograms of the cervical spine made in April, 1947, show hypertrophic spurs of moderate size along the posterior borders of the bodies abutting on the fourth and fifth, and fifth and sixth intervertebral spaces. Roentgenograms of the shoulder are negative.

## DISCUSSION

The first case is one of osteoarthritis of the cervical spine in which the symptoms of radicular pain and paresthesias are due to changes in the soft tissues contiguous to the right sixth cervical nerve root in the intervertebral foramen lying between the fifth and sixth cervical vertebrae. The second case is a fairly typical one of supraspinatous tendonitis of non-calcific type, or what was formerly described as subacromial or subdeltoid bursitis. It is an entity that usually begins in middle age, may come on acutely, generally with pain in the shoulder and limitation of motion, especially in abduction and external rotation. The pain may radiate into the arm and forearm and to the trapezius area. At times it may be associated with paresthesias of the fingers. On examination there is generally point tenderness over the insertion of the supraspinatous tendon. Almost invariably the pain is induced on attempted abduction or external rotation. Later, atrophy of the deltoid may give the shoulder an appearance of squareness. Calcium deposits in the tendon or bursa or both more frequently appear in cases of a recurring character. Sometimes they are observed during the first acute episode. In this instance the obvious pathologic change was in the shoulder, where three and one-half years after onset there is still limitation of motion.

Lesions limited strictly to the shoulder, however, rarely induce pain that radiates below the level of the elbow. Paresthesias in the fingers are not susceptible of explanation on the basis of a lesion of

the shoulder alone. The combination of radicular pain and paresthesias in the fingertips strongly suggests that a part of the syndrome arises from pressure of swollen tissues on a nerve root in an intervertebral foramen. It seems probable that transient swelling of the apophyseal joints, the periosteum and the adjacent ligaments may occur, roentgenographic evidence of which may not appear, as in this instance, for years afterward. The evolution of a typical Heberden's node appears to offer an analogous picture. Roentgenograms of the small red raised tender masses that are seen at the distal interphalangeal joints of a finger as the first manifestation of this type of trouble are negative. Later, when the acute inflammatory reaction has subsided, hypertrophic spurs or lipping may be demonstrated by x-ray. Cases of this sort have led to the assumption that in some instances the condition in the region of the shoulder is secondary to that of the spine, and possibly of trophic origin.<sup>2</sup>

#### CASE REPORT

CASE 3. A married woman 41 years of age, who had been in good health, was examined in the hospital December 30, 1938. In August she had begun to be awakened two or three times nightly by tingling in the tips of the fingers of the left hand, which "could be rubbed away." Two or three weeks later, on awakening during the night, she became aware of pain in the left suprascapular region which radiated to the left shoulder and arm. At first it would leave promptly when the patient arose and became active. Gradually it grew worse. By the end of ten days the pain was constant almost day and night and awakened her repeatedly. The tingling would recur during the day upon elevation of the left upper limb, as to comb the hair. At the end of a week the pain began to diminish. Several days later the patient was free from pain and the tingling had ceased to recur.

In mid-November, however, the tingling returned in the tips of the fingers and soon spread to the entire left hand. It awakened the patient two or three times each night. At the end of the week she was awakened three or four hours after retiring by pain "in the back of the left shoulder" which radiated to the left arm and shortly afterward to the radial half of the left forearm. A fortnight later she was admitted to the hospital with very severe constant pain, particularly in the morning on first waking up. The tingling in the left hand was present most of the time. Improvement followed several days of rest and exposure to a sun lamp and the patient returned home for the Christmas holidays. On December 27, the pain became more troublesome. "A severe burning wave-like distress" set in over the volar aspect of the left arm, forearm, wrist and palm. Coincidentally, numbness of the tips of the left thumb and the distal and middle phalanges of the left index and middle fingers developed. On examination the patient was found to be in great pain. Moderate weakness of the left triceps and absence of the left triceps reflex were noted. There was no cervical rigidity and no pain on snapping the head onto the chest. Percussion over the spine induced no discomfort. Roentgenograms revealed loss of the normal cervical lordotic curve below the fourth cervical vertebra, and a slight degree of hypertrophic osteoarthritis along the posterior margins of the bodies of the sixth and seventh cervical vertebrae.

The patient was placed at absolute rest in bed and given codeine for relief of pain. On January 5, 1939, tonsillar tags were removed. By January 13, analgesic medication no longer was needed and by January 29 the patient was free from

pain. The numbness in the fingers of the left hand persisted in diminishing degree for 13 or 14 months. There has been no recurrence of symptoms.

#### DISCUSSION

In this instance it was decided that an examination of the cerebrospinal fluid and myelographic studies would be made if the patient did not show prompt improvement. When the pain diminished and left, further investigative studies were not made. While it is possible that this syndrome was due to hypertrophic osteoarthritis, in the light of subsequent knowledge, the weakness of the left triceps and the absence of the left triceps reflex, the obliteration of the normal cervical curve in the lateral roentgenograms of the cervical spine, and the recurring attacks of radicular pain with paresthesias in the fingers strongly suggest rupture of a cervical intervertebral disc. In particular, it should be emphasized that loss of a tendon reflex in cases of this type is indicative of an abnormal state of the disc rather than of the other soft tissues. The diagnosis must ultimately rest on myelography.<sup>2</sup>

Tumor of the cervical portion of the spinal cord, a much rarer clinical entity, may lead to the production of a similar syndrome. In that instance, however, protracted relief would not be expected from conservative measures. Ultimately, the steady relentless progression characteristic of neoplasms would lead to symptoms of compression of the spinal cord.

This case is an example which illustrates the wisdom of a conservative approach to cases of radicular pain even with muscular weakness, loss of reflexes and obliteration of the normal cervical lordotic curve. Scoville's statement<sup>5</sup> that less than ten per cent require surgical treatment seems entirely sound. Only when patients have intractable or recurring pain and only after conservative measures such as absolute rest in bed and traction have proved unsuccessful, is surgical treatment advisable.

#### CASE REPORT

CASE 4. A man 52 years of age complained of pain and weakness in the right arm and hand. Seventeen years before, his neck had been forcibly flexed in an automobile accident and for several weeks afterward he suffered from local stiffness and soreness. While playing tennis four years before he had suddenly developed pain in the lower posterior cervical region, with extension to the right arm. Though the pain fluctuated notably in severity, it was persistent despite treatment with heat, diathermy, massage, and traction from time to time. On two occasions, the first two years before the present examination, and the second a year before, he had had periods of weakness of the right arm with a moderate degree of wrist drop. The first episode cleared up after traction; the second was followed by atrophy of the musculature of the entire right upper limb which was most marked in the forearm. During the three months preceding examination he had suffered most of the time from pain in the neck, right arm and hand, that spread to the right scapular and pectoral regions. The pain was most intense in the ulnar portion of the forearm and the third, fourth and fifth fingers. Exercise of all sorts, motion of the neck, coughing and sneezing, and sleeping on the right side aggravated the pain.

Examination disclosed marked weakness of the extensors of the fourth and fifth digits of the right hand, moderately marked weakness of the extensors of the wrist, moderate weakness of the remaining musculature of the forearm, and a slight degree of weakness of the triceps. Atrophy of slight to moderate degree of the forearm was apparent. A slight loss of common sensation could be demonstrated over the ulnar half of the forearm and hand and over the fourth and fifth digits. The triceps reflex was diminished. Pressure on the head led to exaggeration of the pain in the right upper extremity.

Roentgenograms showed loss of the normal cervical lordotic curve with hypertrophic changes along the adjoining borders of the fifth and sixth, and sixth and seventh cervical vertebrae. The hydrodynamics of the cerebrospinal fluid were normal. The total protein content was 70 mg. per 100 cc. Myelographic studies revealed filling defects bilaterally opposite the intervertebral spaces between the fifth and sixth, and the sixth and seventh cervical vertebrae and absence of the nerve sleeve on the right side between the sixth and seventh cervical vertebrae.

At operation the neurosurgeon encountered and removed a hypertrophic spur beneath the sixth cervical nerve root and a protruded nucleus pulposus below the seventh. The operative procedure was followed by immediate relief from the radicular pain in the right upper limb. For ten days there was almost total paralysis of the fourth and fifth digits of the right hand. During the ensuing four days, however, rapid improvement of function took place. At the time of discharge on the 14th postoperative day there was only slight weakness of the musculature of the left arm, forearm, and hand. No change had occurred in the muscular atrophy.

#### DISCUSSION

The variations in the brachial plexus, which may be prefixed or postfixed, complicate the clinical interpretation of cases of this sort characterized by radicular pain. As a rule, however, weakness of the triceps or a diminished or absent triceps reflex may safely be ascribed to damage to the sixth cervical nerve root. In this instance, the wrist drop was apparently due to involvement of the seventh nerve root.

The alternating exacerbations and remissions of radicular pain and other symptoms and signs offer interesting matter for conjecture. It seems probable that as a result of injury some degree of protrusion of the nucleus pulposus occurs. Flexing or twisting the neck may later push the nuclear mass out, leading to compression of the adjacent nerve root with consequent swelling to the point where the nerve root is actually larger than the corresponding intervertebral foramen. If but one insult of this sort takes place

the swelling of the nerve soon subsides and the symptoms disappear. If, however, the nerve is repeatedly injured by protruded material, or by irritation secondary to loss of fluid from the nucleus and consequent trauma to the adjoining structures, the nerve will continue to remain swollen and the symptoms will persist.<sup>7</sup> These postulations may constitute an explanation for the type of relief which frequently follows the use of traction. Obviously surgical treatment alone offers a satisfactory prognosis for cases of this nature and severity.

#### CONCLUSIONS

Radicular pain in the upper limb has the same general characteristics it exhibits elsewhere. It is limited to the area of distribution of a sensory nerve root, is generally aggravated by coughing and straining, and by reclining for long periods, and is frequently relieved by assuming the upright position. If severe or persistent it may be accompanied by muscular weakness with atrophy and fibrillations due to degeneration of the fibers of the corresponding motor root.

Examples of some of the more common types of syndromes in which radicular pain in the upper extremity is a predominating factor have been presented.

1930 Wilshire Boulevard.

#### REFERENCES

1. Barr, J. S. In discussion of Mixter, W. J., and Barr, J. S.: Rupture of the intervertebral disc with involvement of the spinal canal, *New England J. Med.*, 211:214 (Aug. 2), 1934.
2. Boland, E. W.: Personal communication to the author.
3. Michelson, J. J., and Mixter, W. J.: Diagnostic aspects of unilateral ruptured cervical disc, *Arch. of Neurol. and Psychiat.*, 56:721-724 (Dec.), 1946.
4. Mixter, W. J., and Barr, J. S.: Rupture of the intervertebral disc with involvement of the spinal canal, *New England J. Med.*, 211:210-215 (Aug. 2), 1934.
5. Scoville, W. B. In discussion of Michelson, J. J. and Mixter, W. J.: Diagnostic aspects of unilateral ruptured cervical disc, *Arch. of Neurol. and Psychiat.*, 56:722-723 (Dec.), 1946.
6. Semmes, R. E., and Murphey, F.: The syndrome of unilateral rupture of the sixth cervical intervertebral disc, *J.A.M.A.*, 121:1209-1214 (April 10), 1943.
7. Shelden, C. H.: Personal communication to the author.
8. Yaskin, J. C.: Painful affections of the upper extremity and shoulder girdle. Neurologic considerations, *Clinics*, 4:275-293 (Aug.), 1945.



## Degenerative Lesions of the Shoulder as a Cause of Pain

ALONZO J. NEUFELD, M.D., *Los Angeles*

**P**AINFUL degenerative lesions of the shoulder are ordinarily associated with advancing years. They include changes in the tendons, shoulder capsule and the joint cartilage. Terms such as tendinitis, bursitis, peri-arthritis, arthritis, and others, are given to these lesions. The symptoms are frequently initiated by trauma, even though minor. Degenerative changes are the major cause of prolonged disability beyond the second and third decades.

The shoulder joint is the most mobile in the body. It depends on its muscle and tendinous support for a large share of its stability. The rotator cuff and its spinatus tendons must travel a long way during resisted abduction of the arm, while they are under pressure between the head of the humerus and the acromion. The long head of the biceps is similarly situated medial to the greater tuberosity, extending medialward over the humeral head within the joint capsule to its insertion on the upper pole of the glenoid.

The classical description of the lesions of the shoulder joint which lead to pathological rupture, as well as to calcification of the rotator cuff as given by Codman<sup>2</sup> is clear and concise. The earliest gross changes which give evidence of degeneration are loss of the normal elasticity of this tissue. On microscopic examination, this change is evidenced by a hyalin degeneration in the collagens of the tendon fibers. This degeneration is followed by fibrillation or separation of the individual fibers which then become more easily vulnerable to the trauma of movement. If enough of these individual changes have occurred in the substance of a tendon, there may be various degrees of separation in local areas of these thickened, swollen, degenerated tendon fibers. As they have lost their normal elasticity, additional trauma may break them up into small pieces so that they eventually become what have been termed "rice bodies." These small accumulations of loose degenerated tendon fibers may undergo a process of healing, or gradually enlarge as other fibers are added to the original mass. Although the material in these cavities appears grossly at operation as an accumulation of pus, it is sterile on culture. If trauma is not sufficient to produce major ruptures of the tendon, this degenerative mass of material may become calcified. The mechanism for this change is not known. The degenerative process is usually reversed when a rupture or tear occurs in some overlying tendon fibers so that the material may be thrown out into more vascular tissue such as the subdeltoid or the subacromial bursa. Granulation tissue then invades the cavity in the healing process. When this material is thrown out into tissue which is more vascular, the normal foreign body reaction takes place. The inflammatory reaction around this

area when it is small can quickly repair these tissues. If, however, a tear should occur, and a large amount of debris is thrown into the subdeltoid bursa, or if calcareous material is thrown out into the subdeltoid bursa, the inflammatory reaction which takes place will be acute. Early calcareous deposits are at times the seat of inflammation. Prior to rupture there may be marked pressure increase within the sac. This results in acute pain which will be aggravated by any type of treatment or pressure that increases deep engorgement or congestion.

The calcareous material, at first liquid and milky, gradually becomes dry and chalky in the chronic cases. The degenerated bands or strands are easily seen when the bursa is opened. When the dry, chalky material is curetted from the various small pockets, the edges are dry, rough and avascular, until the base and margins have been cut away. These margins have the gross appearance of fibrillated degenerated tendon. It may be necessary to cut through the cortical plate of the bone at the base to get free bleeding.

The joint cartilage changes are at first swelling and softening, and later fibrillating and thinning, especially in those shoulders that have soft tissue degeneration. The subchondral bony plate may become hard and sclerotic.

The degenerative changes previously enumerated are, in the author's opinion, primarily metabolic, with heredity an important determinant. Just as gray hair appears earlier in the offspring of certain parents, so degenerative tendencies also are transmitted. These tendencies may be manifest through a gradual slowing down of circulation to part of or all the body tissues with advancing years. Since tendons and joint cartilage are poorly nourished as compared with muscle, they are the first to undergo the changes which anoxia brings about.

Trauma plays an important part in many cases, in bringing on the acute changes, but it is not the sole cause, for even greater trauma in younger people produces only brief disability or none at all. If trauma were the major consideration, then why should we see more women than men disabled? And why are the slender, small boned, poorly muscled so frequently affected, even though they have been doing almost sedentary work? It is noteworthy that, in the author's experience, shoulder lesions in patients in this category have been the most resistant to treatment, and convalescence has been slower. Trauma may be caused by bacterial or other toxins which can sharply accelerate tissue senescence. Such traumata seem quite pronounced in what we choose to call rheumatoid arthritis.

Patients, usually over 30 years of age and most frequently 40 to 50, give a history of either a slowly progressive ache in the shoulder without trauma, or of a rather minor injury followed by a lull of eight to twenty hours of relative comfort before the acute symptoms begin. When the patient is acutely affected

Read before the sections on Neuropsychiatry, Radiology, and Industrial Medicine and Surgery at the 76th Annual Session of the California Medical Association in Los Angeles, April 30-May 3, 1947.

he has severe shoulder pain, with an elevation of temperature to 100 degrees or 101 degrees F., pain on any arm movement and severe tenderness on pressure over the greater tuberosity. The author has seen patients with a leukocyte count as high as 16,000, although this is not common. The pain apparently is especially annoying at night. The application of heat, diathermy, for example, intensifies the pain; cold relieves it. In about one to two weeks the pain begins to subside, and the patient may begin to move the arm a little. This relief occurs, even though the only treatment is the splinting imposed by nature. McLaughlin<sup>3</sup> states that in a large series studied, results among patients given no treatment except sedatives were strikingly similar to those obtained in patients who were given vigorous treatment. Calcifications need not cause pain, as Bosworth<sup>1</sup> found that 2.7 per cent of a series of 6,000 of so-called normals had calcifications without symptoms.

In the chronic cases the patients may have severely stiff shoulders for periods of from six months to four years. Pain is not proportional to the original injury or to the degree of stiffness. A very high percentage of patients will recover near-normal range of motion unless the joint has been damaged by vigorous manipulation or too strenuous physiotherapy.

No x-ray examination is complete that does not provide a two-view projection, one view setting the greater tuberosity in relief in either internal or external rotation, the other a view at 90 degree angle from this. The early changes are seen as a decalcification or pitting of the greater tuberosity. Later this same area may be the site of calcification. The early calcifications during the "milky stage" are seen as a hazy shadow. The dry, chalky deposits are seen as sharply outlined shadows. These are sometimes seen in the subscapularis tendon as well as in the supraspinatus insertion.

The author's choice of treatment during the very acute phase is, in the absence of calcification, the application of ice caps directly to the shoulder. These are applied for 20 minutes and then removed for 20 minutes, this alternation being continued the first 24 to 48 hours, when the acute symptoms usually have subsided. If fever is present, the use of penicillin and sulfa drugs for the same period accelerates the return to normal. Later the ice caps are alternated with hot water bags or an infra-red lamp. In those patients who have visible calcifications, surgical removal will give the quickest, long-term relief.

In both instances those movements which cause pain are strictly proscribed. When the patient can move the arm even a small amount without pain he is encouraged to move it actively, but within the painless range. The airplane splint is a great help both in aiding early exercise of the shoulder and in preventing the adducted frozen shoulder which is sometimes seen. It is most important that the exercise be active and that it be done as many times a day as possible, as long as it does not result in stiffening or excessive after pain.

The same active exercise program is prescribed

in the subacute cases. Any measure which will promote local increase in circulation is indicated. Application of heat (especially before exercise), alternate hot and cold applications, local infiltrations of novocain as well as stellate ganglion blocks, and many measures are useful. Because of the long time periods involved in many cases, patients are sometimes overtreated. Massage, if given carefully, will do a great deal to alleviate muscle tenderness. The excessive use of deep heat, such as diathermy or x-ray therapy, in chronic cases probably prolongs rather than accelerates the recovery rate. The clinical course appears to be self-limited for each episode. The degree of change determines the time of recovery. A great deal of our emphasis is directed to decreasing secondary reaction and lessening the trauma of moving a swollen greater tuberosity under the acromion.

Although some patients in the higher age brackets should be urged to decrease their work or change the nature of it, ordinarily they should be permitted to perform as much of their work as they can as soon as they can. This helps keep up morale—which is important in the treatment—when the progress is slow. Assurance may be given that the prognosis is excellent so far as eventual use of the joint is concerned.

The immediate results in acute cases, whether operation or conservative therapy is used, are good. Even those patients who have had tears of the rotator cuff will be able, with the aid of local novocain blocks, to start an exercise program and to keep up a surprising amount of it after the effect of the drug has worn off.

If quick repair is expected, the results in chronic cases are discouraging. Stellate ganglion blocks give rather consistent relief of pain, but this relief is more lasting in the more acute cases. When the patient is of the slender, sthenic type, time alone often seems to bring healing, although it may be three to eighteen months before satisfactory function returns.

#### SUMMARY

1. The pathological changes in degenerative lesions of the shoulder have been reviewed.
2. These have been given as an explanation for the frequent chronic cases seen from minor injury.
3. Acute cases are treated preferably by cold rather than heat.
4. Exercise should always be *active* and within the painless range.
5. Overtreatment and manipulations are two of the causes of prolonged disability.
6. Novocain infiltrations locally, as well as stellate ganglion blocks, are valuable adjuncts to treatment.

1216 Wilshire Boulevard.

#### REFERENCES

1. Bosworth, Boardman March: Calcified deposits in the shoulder and subacromial bursitis; a survey of 12,122 shoulders, J.A.M.A., 116:2477 (May 31), 1941.
2. Codman, E. A.: The shoulder, 1934, pp. 65-122.
3. McLaughlin, Harrison L.: Calcific deposits in the shoulder, N. Y. State J. of Med., 44:2231-2235 (Oct. 15), 1944.

## Psychosomatic Considerations in Gastroenterology

LESTER M. MORRISON, M.D., *Los Angeles*

THE abdomen has been aptly called "the sounding board of the emotions." All of us have known the student who before examinations may develop loss of appetite, nausea or diarrhea, or the businessman who may experience indigestion, heartburn and actual abdominal pain at the time of important conferences or in connection with financial reverses. Emotional stimuli are known by all of us to produce disturbance of the gastro-intestinal tract affecting appetite, digestion, and function of the colon. When these emotional disturbances and their effects become chronic, we designate them as gastro-intestinal neuroses.

As Weiss and English have pointed out in their classic studies on psychosomatic medicine, the theory of psychogenic disorders has now received widespread recognition. Our daily language is filled with phrases which refer to the relationship between the personality and gastro-intestinal tract. Thus we speak of a "sucker" as the man who "bites" on something and is fooled; we designate certain persons as "leeches" because of their propensities to hang on. We speak of a person "sinking his teeth" into a job; of "guts" and "intestinal fortitude," or of not being able "to stomach" something. Everyone is familiar with the expressions "a bellyful" and "biting off more than one can chew." There are a great many vulgar words and phrases for feces which are used colloquially to indicate depreciation or disparagement or hatred. In all this organ-jargon or "language of the organs," the layman acknowledges a direct relationship, even though by intuition and unconsciously, of the importance of the gastro-intestinal tract to the development of the personality. Among physicians there are three attitudes toward this relationship. In one group are the "die-hards" who believe that chronic gastro-intestinal disease brings about the changes in personality. Others acknowledge psychogenic causes of the "functional" disturbances of the digestive tract, but employ vague terms to describe the psychological factors, such as "emotional disorders" or "worries," and adopt the attitude that these obviously explain the illness and its treatment. A third group has the progressive approach that the personalities of patients with these disorders should be studied and the treatment gauged accordingly.

W. C. Menninger has pointed out that if for no other reason than the length of the gastro-intestinal tract, its functional disorders probably constitute the largest single group of cases in medicine in which organ dysfunction is present. Next to the skin, more of the digestive tract is in contact with the outside world than any organ. It is subject to more direct demands for adjustment and accommodation, more

insults and abuses and a greater variety of opportunities for gratification, than any other organ or system suffers or enjoys. Many of our patients in gastroenterologic practice because of a gastro-intestinal problem fall into the so-called "functional" group, where no organic disease of the digestive tract can be demonstrated following complete examinations, and x-ray and laboratory studies.

We are all conscious of the increasing recognition by clinicians that a "functional" difficulty in the gastro-intestinal tract is the expression of a disorder in the personality. While many physicians pay lip-service to this concept in theory, there are still many who do not apply this in practice. As Crookshank has so aptly said, physicians often continue to refuse to seek the psychological implications in a case of "mucous colitis." It would be as though a clinician, confronted by a patient with uncontrollable emotional weeping, were to describe the case as one of "paroxysmal weeping" and treat the patient with belladonna, sedatives, local applications, and advice to avoid sexual excess, tea, tobacco, and alcohol, with prescription of a salt-free diet and restriction of fluid intake, then, in the event of failure, removal of the tear glands would be recommended. Of course this sounds ridiculous, but a good deal of medicine and surgery seems to be on much the same level.

### SECURITY AND NOURISHMENT RELATED

It is easy to see how the abdomen can act as the sounding board of the emotions, because it is so thoroughly supplied by the autonomic nervous system including both the sympathetic and parasympathetic nerve fibers—the direct lines of communication between the brain centers and the abdominal organs. In addition the behavior patterns of the gastro-intestinal tract acquired during infancy are relayed to the brain and stored there in that reservoir of memory, the unconscious mind. If the proper stimulus is present, without the conscious awareness of the patient, impulses can be sent out from the unconscious mind through the autonomic nervous system, thereby bringing back once again the old infantile behavior pattern. Security and nourishment are inextricably connected in the unconscious mind because of the instinctual need for survival in infantile life. Should the patient's security be endangered later in his life, the organ which controls nourishment can be disturbed from its normal function. The following examples, culled from personal clinical investigation, demonstrate how emotional influences are mediated from the brain centers through the autonomic nervous system, resulting in profound changes in the digestive tract.

1. The effects of hypnosis on gastro-intestinal secretion were studied in a medical student by the author in 1935. The patient was hypnotized, and before hypnosis a gastric tube was passed. Through suggestion the student was made to believe he was

From the Department of Internal Medicine, College of Medical Evangelists.

Presented before the Western Society for Psychosomatic Medicine, Nov. 2, 1947.

masticating a delicious steak. The gastric secretions were continually aspirated and it was found that the pepsin and hydrochloric acid content rose immediately to a high level. Then suggestion was employed to introduce the idea that the meat was badly spoiled and that it was disgusting to taste. Immediately the volume of gastric secretion, gastric acidity and pepsin content was reduced.

2. During gastroscopies, the author often has had occasion to corroborate the studies that William Beaumont made over 100 years ago in Alexis St. Martin. It will be recalled that St. Martin had a gun-shot wound of the abdomen which laid open a gastric fistula. By this means Beaumont was able to look directly into the stomach and observe that when St. Martin was angry or depressed, the mucosa of the stomach could become red and dry, and at other times become pale and moist, and the secretions would fluctuate correspondingly. These changes were also shown later by Wolf and Wolf in their subject, "Tom."

3. Over ten years ago the author and an associate were struck by the number of patients who had been unnecessarily operated upon for so-called "chronic appendicitis." In our published report<sup>5</sup> at that time these patients were demonstrated to have the "spastic or irritable" colon syndrome, i.e., a gastro-intestinal functional disease. The pathologist would regularly report "normal appendix" on the surgical specimens of these cases sent to the laboratory. After a more careful history and examination, the disease in these patients was found to be of psychogenic origin. The accompanying tables show how, with more time directed to the personality and emotional factors, unnecessary operations and suffering could have been avoided. These patients pre- and postoperatively complained of atypical abdominal pains; in 33 per cent the symptoms involved the right lower quadrant; accompanying symptoms were gassy distress, disturbances in bowel function, pyrosis, flatulence and nervousness.

In Table 1, it is notable that patients with the spastic colon syndrome complained of "nervousness" in only 24 per cent of the cases. It is therefore incumbent upon the physician to bring out the psychogenic factors in order to solve the problem of this psychosomatic illness presented by the patient.

TABLE 1.—Frequency of Neurosis Symptoms in Patients with Irritable Colon

Symptoms	No. of Patients	Per-centage
Constipation including alternation with diarrhea	28	82
Constipation alone	24	71
Generalized abdominal distress or pain	23	68
Presence of "gas" and belching	17	50
Nausea with or without vomiting	15	44
Pains in lower right quadrant	11	33
Nervousness	8	24
Constipation alternating with diarrhea	8	24
Fatigue, lassitude or exhaustion	7	21
Diarrhea alone	3	12

Table 2 demonstrates the value of eliciting the direct, causal relationship of emotional tension to the physical signs and symptoms. In 88 per cent of the cases reviewed, this relationship was discovered by careful questioning.

TABLE 2.—Most Valuable Differential Diagnostic Signs or Symptoms

Symptoms or Signs	No. of Patients	Per-centage
Cases noting precipitation or aggravation of symptoms by emotional tension	30	88
Cases noting spastic (or diarrheal) types of stools	26	87
Unstable autonomic nervous systems	29	85
Poor living and hygienic habits	27	80
Personality disturbance	27	80
Gross mucus in stools	24	71

Table 3 demonstrates that in the average individual three symptom-free years can be ascribed to the psychological effects of operation in this series of patients, although some patients had a return of symptoms within a month or two after operation.

TABLE 3.—Duration of Symptoms in Patients with Irritable Colon Before and After Appendix

	Average No. of Years	Range in Years
Before operation	6.6	1/4-27
Time elapsed between operation and recurrence of symptom	3.	1/12-20

Table 4 describes the good results of treatment in a group of patients who were completely co-operative and willing to undergo treatment jointly with the gastroenterologist and the psychiatrist in either hospital clinic or private practice.

TABLE 4.—Results of Treatment

Condition	No. of Patients	Per-centage
Considerable improvement (including symptomatic cures) within 3 months	24	67
Same as end of one year	3	18
Failure of therapy	2	15

4. During investigations into diseases of the pancreas, the author conducted a series of studies by duodenal enzyme tests in a group of patients who were referred to our gastro-intestinal clinic, suffering from so-called "nervous indigestion." These patients, whom we referred to the psychiatric clinic for appraisal, were found to be suffering from varieties of anxiety neurosis, anxiety hysteria, conversion hysteria and neurasthenia. Table 5 shows the averages of duodenal enzyme tests in this group of patients compared with results of the tests in a group of normal students and internes and also a group of patients suffering from organic diseases of the pancreas, biliary tract and stomach, such as carcinoma of the pancreas and cirrhosis of the liver and pancreas. It is noted that in the group of patients with functional disturbance there was a definite impairment of secretion of the pancreatic enzymes pro-

TABLE 5.—*Duodenal Content Analyses for Pancreatic Enzymes; Total Average of Four Enzyme Readings in Comparative Studies of Upper Gastrointestinal Tract Diseases.*

Enzyme	Normal Control Subjects	Functional or Nonorganic Diseases	Organic Diseases
Proteinase*	3.6	2.0	1.3
Minimum variation	0.6	0.2	0
Maximum variation	7.4	3.8	5.6
Amylase†	7.5	4.3	3.7
Minimum variation	0	0.6	0
Maximum variation	17.3	8.5	10.4
Lipase‡	8.0	4.0	3.6
Minimum variation	0	0	0
Maximum variation	31.4	8.5	13.6

\* Milligrams tyrosine equivalent.

† Milligrams glucose equivalent.

‡ Milliliters 0.05 N sodium hydroxide equivalent.

teinase, amylase and lipase. This impairment is intermediary between the group average for the normals and that of the group having organic disease. This sub-normal pancreatic secretion in gastrointestinal neurosis has a significant biochemical and physiologic bearing on the cause for the "nervous indigestion" in these patients. This latter lay term is actually correct in that a measureable and substantial deficiency in digestive ferments occurs in emotional derangement which aids in causing the well known symptoms.

Anxiety is the central symptom of nearly all the neuroses and psychoneuroses, and its recognition is of fundamental importance in the management of all gastro-intestinal neuroses. Unfortunately, many physicians are either constitutionally unfit to manage neurotics, or do not have the time nor understanding required to treat the illness.

Anxiety hysteria is certainly one of the most frequently seen psychoneuroses in the daily practice of gastroenterology. In anxiety hysteria the manifestations are aerophagia, pyrosis, globus, esophagospasm, cardiospasm, pylorospasm, duodenal spasm, the spastic irritable colon syndrome, diarrheas, and constipation. Apprehension is a constant finding in all these manifestations.

As to the psychopathology of the gastro-intestinal neuroses which are present in the bulk of patients in gastroenterologic practice, the neurotic reactions include anxiety neurosis, conversion hysteria, anxiety hysteria, neurasthenia, and compulsive-obsessive neuroses.

Because nothing is more dramatic in medicine than sudden, visible hemorrhage, the experiences of two patients with ulcer will be described as examples of the effects of acute anxiety.

A young patient vomited so large a quantity of blood while on his honeymoon that a transfusion was necessary. This young man had had a previous hemorrhage from a duodenal ulcer in 1939 while his fiancée was making up her mind as to whether to marry him. The second hemorrhage occurred on his wedding night in bed in 1940. A third took place shortly after the patient received his draft notice in

1941, and a fourth occurred in 1942 when, because of the war, he had to close up his non-essential business. This certainly is an excellent demonstration of the effects of acute anxiety in the individual who has a peptic ulcer.

A distinguished clinical investigator in the East on two occasions was offered the professorship of medicine in two outstanding universities. Each time, after two or three days of deliberation, he suddenly collapsed from profuse tarry bowel movements due to severe hemorrhage from duodenal ulcer, although there had not been any apparent signs or symptoms of peptic ulcer preceding the hemorrhage. It is doubtful that a better example of the effects of acute anxiety could be found.

Weiss and English<sup>6</sup> have helped their patients to understand the symptoms by explaining the symbolism of these symptoms. If the patient cannot find an outlet for emotional tension by actions or words, the body will find some way of expressing this tension in a kind of organ language. As an example, if a patient has difficulty in swallowing (as in globus), and there is no organic disease present, it may mean that there is something in the life situation of the patient that he cannot swallow. Similarly, nausea with no organic cause may mean that the patient cannot stomach some environmental situation. In anorexia nervosa, with loss of weight and malnutrition, the patient may be emotionally as well as physically starved.

It may be of value to mention some of the emotional disorders occurring in the personality of patients with two prevalent gastro-intestinal diseases.

1. Peptic ulcer: This disease tends to occur not so much in persons of a certain personality type as in a typical conflict situation which can develop in various kinds of personalities. This characteristic conflict is between the desire to remain in the dependent situation of infancy or childhood, to be loved and cared for, and the opposing emotional drive in the pride and aspiration of an adult ego for independence, achievement, and self-sufficiency. Thus, many patients who have peptic ulcer show in their apparent behavior the aggressive, ambitious, independent attitude in an exaggerated way. Peptic ulcer is often seen among successful business men.

2. Colitis: This disease, which includes the non-specific varieties, was found in studies conducted at Harvard to be the somatic response to a type of nervous tension in 96 per cent of the cases. This involved anxiety (82 per cent), resentment (92 per cent), and guilt (67 per cent). Associated depressive, neurasthenic and hypochondriacal features are often present, but no one personality disorder is characteristic. However, a rigid type of thinking, such as in obsessive-compulsive states, is present in half the cases. The stigmata of instability of the autonomic nervous system are usually present.

Although this presentation has emphasized psychological considerations in gastroenterology, it is well to remember that the shoe may fit on the other foot as well. As many another clinician has observed, a patient with a psychoneurosis may develop an

organic lesion, such as cancer, which may escape attention because the attending physician, in evaluating the symptoms, may be biased by knowledge of the neurotic personality of the patient. It should therefore always be borne in mind that before a diagnosis of gastrointestinal neurosis is arrived at, every possibility of organic diseases such as cancer and gallstones should be ruled out by the proper examinations.

#### SUMMARY

1. The relationship of personality disorders to gastro-intestinal diseases is outlined.
2. The symbolism of organ language in digestive tract diseases is described.
3. Analysis of patients with the spastic "colitis" or spastic colon syndrome is presented from the psychosomatic aspects.
4. Biochemical and physiological studies are demonstrated in so-called "nervous indigestion,"

showing the biologic changes occurring in various psychosomatic disturbances affecting the gastrointestinal tract.

6333 Wilshire Boulevard.

#### REFERENCES

1. Alexander, F., in diseases of the digestive system, edited by Portis, S. A., Lea and Febiger, p. 827, 1944.
2. Bockus, H. L.: Gastroenterology. See Yaskin, J. C.: Functional disorders of the gastro-intestinal tract of neuropsychiatric origin, 3:908, 1946.
3. Crookshank, F. G.: Organ-Jargon, British J. Med. Psychology, 10:295 (Jan.), 1931.
4. Menninger, W. C.: Functional disorders of the gastrointestinal tract, Am. J. Digest Dis. & Nutrition, 4:448 (Sept.), 1937.
5. Swalm, W. A., and Morrison, L. M.: A plea for conservatism in appendectomy for chronic appendicitis; observations on the spastic, irritable colon syndrome, Pennsylvania M. J., 41:988 (Aug.), 1938.
6. Weiss, E., and English, O. S.: Psychosomatic medicine, W. B. Saunders Co., 1943.
7. White, B. V., and Jones, C. M.: Mucous colitis, Ann. Int. Med., 14:854 (Nov.), 1940.



## Breast Cancer in Mice

MICHAEL B. SHIMKIN, M.D., *San Francisco*

ONE of the earliest published descriptions of a mammary tumor in a mouse was made by Crisp in 1854. Scattered descriptions of a few tumors appeared in the literature between 1891 and 1906 in connection with experiments being carried on during that period in transplantation of tumors. Apolant, in 1906 made a noteworthy contribution in his exhaustive and accurate description, classification, and consideration of pathogenesis, based on the study of 276 tumors. Additional studies by Borrel, Michaelis, J. A. Murray, Haaland, and others permitted the conclusion that these tumors are malignant epithelial new growths of the mouse.

Mammary tumors in mice originate multicentrically from the cells of the mammary epithelium. The tumors may arise from any portion of the mammary tissue, which in the mouse extends over the whole subcutaneous area from behind the ears to the base of the tail except for small midline ventral and dorsal strips. The subcutaneous tumors grow progressively, and spontaneous regression is rare although by no means unknown.

The reader is referred to "A Symposium on Mammary Tumors in Mice," by members of the Staff of the National Cancer Institute, Am. Assn. Advancement Sc. Publ. 22, 1945, and to Shimkin, M. B., Experimental Induction of Mammary Cancer, Surgery 19:1-24 (Jan.), 1946, for fuller treatment and bibliography on the subject.

Surgeon, United States Public Health Service, Director, Laboratory of Experimental Oncology, University of California Medical School, San Francisco, California.

Presented before the section on Pathology and Bacteriology at the 76th Annual Session of the California Medical Association in Los Angeles, April 30-May 3, 1947.

Microscopically, numerous morphologic variations between different tumors and different areas of the same tumor are encountered. Although in the majority an adenomatous pattern revealing its relation to or derivation from glandular structure is evident, arrangement may be in compact masses; and papillary, cystic, and hemorrhagic areas also are frequent. More rarely, keratinizing and molluscoid forms may be seen, and a few tumors contain neoplastic connective tissue elements as well, forming carcinosarcomas. Despite these variations, however, the tumors form a pathologic entity, and for most purposes the term "mammary tumor" is adequate.

The mammary tumors invade and infiltrate contiguous tissue, metastasize to the lungs and other sites, and recur after incomplete removal. The neoplasms can be transplanted into mice of the same genetic constitution, and some grow heterologously in the anterior chamber of the eye of rabbits or guinea pigs. The tumors grow in tissue culture and can be cultivated in the yolk sac of the embryonic chick.

On the whole, the biochemical constituents of mammary tumors are very similar to those of other mouse tumors. There is an accumulation of lactic acid, a lower pH, and a higher rate of anaerobic glycolysis than in most normal tissues. The vitamin concentration is near the upper level seen in other tumors, and the pattern of enzymes is similar to that in other mouse tumors. The values for the esterase of

the blood serum, the catalase activity of the liver and kidney, and the hemoglobin of the blood are lowered with growing tumors.

Soon after the inception of cancer research on mice, it was noted that tumors appeared more often within certain cages of the colonies than within others. The immediate response to the observations of this selective occurrence of tumors was the suggestion of an infectious origin, particularly stressed by Borrel. In opposition to this theory, Loeb's studies suggested that hereditary factors were involved, and this concept was strengthened by the experiments of several investigators. J. A. Murray's paper of 1911 presented convincing evidence that female mice in whose immediate ancestry cancer of the breast occurred, were distinctly more liable to develop the disease than mice in whose ancestry tumors were more remote. The experiments of Lathrop and Loeb and of Slye further demonstrated that hereditary factors influenced the formation of tumors. As early as 1909, Little foresaw that homozygous strains were essential for an adequate analysis of characters as complicated as tumors. Experiments with homozygous strains of mice with incidences of mammary tumors ranging from less than 1 to over 90 per cent, developed by Little, Strong, and other geneticists, did not allow postulations of any simple genetic transmission of mammary or other tumors and also showed that degrees of susceptibility to different types of tumors are inherited as separate characters.

It is now established that susceptibility to mammary tumors is not a character with an all-or-none expression but is expressed in degree. Genetic factors influencing susceptibility are multiple. There is a relationship between mammary tumor development and a known, inherited, single-factor, coat-color trait—lethal yellow.

#### THE ROLE OF HORMONES

The experimental demonstration of the influence of ovarian hormones on the development of mammary tumors in mice was begun in 1913 by the work of Loeb and his associates. It was found that mammary tumors occurred more frequently in breeding than in non-breeding mice. Loeb further demonstrated that the incidence of tumors can be radically reduced by ovariectomy, and that the incidence is related to the age of the animal at the time of ovariectomy. Cori and W. S. Murray substantiated these findings, and the latter succeeded in obtaining mammary tumors in castrated male mice bearing ovarian grafts.

With the advent of chemically isolated estrogens, Lacassagne in 1932 reported the appearance of mammary tumors in male mice injected with these compounds. Most important was the fact that estrogens would elicit mammary tumors in males of strains in which females developed such tumors spontaneously, and in approximately the same incidence. Males of strains in which the tumor incidence was extremely low did not develop mammary cancer despite strenuous treatment with estrogens.

Development of mammary carcinomas has been

elicited in male mice of susceptible strains with all the natural and synthetic estrogenic compounds that have been studied. The list includes estrone, estradiol, estriol, equilin, equilenin and their benzoates, diethylstilbestrol and its dipropionate, and triphenylethylene. In general, the carcinogenic activity tended to be related to the amount of estrogen in physiologic units rather than to chemical configuration or other properties. The chemicals could be administered subcutaneously, percutaneously, or orally with the same results, depending on the physiologic activity by the particular route. However, they had to be administered for some length of time, eight weeks or longer, for tumors to appear at a subsequent date. With the compounds in oily or aqueous media, having short periods of activity due to rapid elimination, relatively heavy doses were required to elicit the carcinogenic reaction. When the compounds were given in the form of subcutaneously implanted pellets, allowing steady and constant absorption, it was found that the dose of estrogen needed for the induction of mammary tumors was not above that physiologically elaborated by untreated female mice.

These experiments also permitted a thorough microscopic study of the changes in the breast leading to neoplasia.

In the male or the ovariectomized immature female with an intact pituitary, the mammary gland is a rudimentary structure of a few stunted ducts. The ducts begin to proliferate and to dilate within a few days after the administration of estrogens. They soon form buds, and the cells of the proliferating epithelium are large, with clear cytoplasm and vesicular nuclei. In some ducts, the cells become arranged in several layers and secrete an acidophilic product in the form of intracellular and extracellular droplets. The process progresses to the formation of small acinous lobules, so that the rudimentary breast becomes as well developed as that in the normal female. With excessive doses of estrogen, however, the glands become stunted and have localized areas of extensive alveolar development. If estrogen is discontinued at this point, the mammary hyperplasia undergoes gradual regression. With continued estrogenation, there is progressive hyperplasia of the alveoli and ducts; dilation of the ducts, round-cell infiltration, and increase in periductal fibrous tissue are observed inconstantly. In mice of strains in which adenocarcinoma does not develop, the process does not progress beyond this hyperplasia. In mice that develop cancer, there is a multicentric formation of adenomatous nodules which often coalesce, and adenocarcinoma develops in these centers. Microscopic examination does not reveal any sudden alteration which may be designated as the point at which the normal cells become neoplastic. The site, the growth, and the histologic appearance of mammary tumors elicited in mice injected with estrogens correspond in all details to the description of the spontaneous adenocarcinomas in female mice.

Numerous investigations have been performed in an attempt to discover differences in the morphology or physiology of the breast in mice belonging to

strains with different incidences of mammary carcinoma. No clear differences in morphology have been established. In general, however, hyperplasia of the ducts and alveoli under the stimulation of estrogens tends to be more rapid and more uneven, with the eventual development of adenomatous nodules, in the high-mammary-tumor strains. Distention of the ducts into cysts, round-cell infiltration, and an increase in periductal fibrous tissue are inconsistent features apparently not associated with the eventual development of mammary neoplasia.

The morphologic studies also stress that the essential difference between male and female mice, as far as the appearance of mammary carcinoma is concerned, is the practical absence of the mammary gland in the male animals. The formation of the gland and the increase in cellular elements under the stimulation of estrogens thus exteriorize or make possible the development of some factor already present in the animal that leads to the eventual appearance of gross mammary tumors. It is also clear that something more than excess growth is operating in the cancerous transformation of the breast. The onset of recognizable malignant nodules occurs in breeding females or in mice injected previously with estrogens when the major part of the mammary gland is involuting. A difference between the normal growth process and the neoplastic process is also indicated by the unsuccessful attempts to produce a direct transition of the fully developed mammary gland of pregnancy or lactation into a carcinomatous gland by continued injections of large doses of estrogen.

Studies aimed at demonstrating the essential difference between strains of mice that are susceptible to mammary carcinogenesis and those that are not, either spontaneously or under the influence of exogenously supplied estrogens, also took other lines. The estrus cycle of mice of different strains was compared; no correlation was found between the length or regularity of the sexual cycle, duration of keratinization of vaginal mucosa, and the occurrence of tumors. The susceptibility of mice to estrogens, as manifested by the dose required to produce estrus in spayed mice, was not correlated with the susceptibility to formation of tumors. The urinary excretion of estrogens and 17-ketosteroids and the ability of the liver to destroy estradiol *in vitro* do not differ significantly in the low- and the high-mammary-tumor strains. Nor could correlation be established with degenerative changes in the adrenals, the pituitary, or other endocrine organs.

Although the estrogens maintained their focal point in the genesis of mammary tumors in mice, it was shown that other endocrine secretions, especially those of the adrenal cortex and the anterior pituitary, were involved. Androgens, given over protracted periods of time, reduce the incidence of such tumors. The action is probably analogous to castration, since androgens suppress the estrus cycle and prevent follicular maturation. The adrenal cortex, in relation to sexual functions, can be considered as a potentially bisexual accessory gland capable of secreting

either estrogens or androgens under the influence of stimuli from the pituitary gland. Woolley demonstrated that gonadectomy of young mice of two high-tumor strains led to progressive hyperplasia of the adrenal cortex. There was gradual recovery of the uterus, vagina, and breast from the castrate state, and mammary tumors developed in the females. In strains that do not develop mammary tumors spontaneously, no mammary tumors were obtained. Mammary carcinogenesis following gonadectomy is probably best explained by the extragenital production of estrogens in the hyperplastic adrenocortical tissue and is dependent upon whether the normal females of the strains develop tumors of the breast. The origin of estrogens in the adrenals was supported by the close morphologic similarity of the cells of the adrenal nodules to lutein-like cells of the ovary.

Subcutaneous graft of the hypophysis raises the incidence of mammary tumors in intact females but does not elicit them in males or ovariectomized females. Thus, the pituitary probably stimulates secretion from the ovary; it does not increase the incidence of tumors in strains of mice that do not develop such tumors spontaneously.

#### THE EXTRACHROMOSOMAL FACTOR

Between 1930 and 1933 the members of the staff of the Roscoe B. Jackson Memorial Laboratory conducted a number of reciprocal hybridization experiments with the high- and low-tumor strains that they had by that time perfected. The results of these experiments, along with those of Korteweg, led to the discovery of the extrachromosomal factor in mammary-tumor development and opened the door to one of the most fruitful lines of cancer research of the past decade. The discovery was that the hybrid female offspring resulting from the mating of high-tumor-strain females to low-tumor-strain males developed tumors in approximately the same incidence as the female of the high-tumor strain; but when the reciprocal cross was made, that is, low-tumor-strain females were mated with high-tumor-strain males, the tumor incidence of the female offspring was but little greater than in the female of the low-tumor strain.

Since the genetic constitution, including the sex chromosomes, was the same for the two groups of females resulting from reciprocal crosses between two isogenic lines, it was obvious that this effect was not transmitted through the chromosomes. It had to be some extrachromosomal factor which the female was capable of transmitting to her offspring. It appeared that this factor was probably transmitted by one of three possible routes: through the cytoplasm of the egg, through the placenta, or through the milk or other contact with the mother after birth.

Bittner undertook the study of the third possibility, and it was through his work that the factor was primarily revealed. Almost astonishing in its simplicity, the transfer of mice of high-mammary-tumor strains shortly after their birth to foster mothers of low-mammary-tumor strains reduced the occurrence of neoplasms. The low incidence was maintained in subsequent generations; in two strains with a previous

incidence of 80 per cent, animals of the tenth to the twentieth generation after a single interruption of the ingestion of milk from their mothers of high-cancer strain had an incidence of less than 2 per cent. When complete interruption of the milk ingestion could be assured, as by removal of the young from the uterus, even a lower residual rate of tumors was encountered. The basic observation has now been repeated and substantiated in one dozen or more independent laboratories throughout the world.

When low-tumor strains of mice are suckled by foster mothers of high-mammary-tumor strains, there is an increase in the incidence of mammary tumors. Whether this increased incidence is maintained or not depends on the genetic susceptibility of the strain. Strain C mice, possessing this genetic susceptibility, and having less than 2 per cent incidence of mammary tumors, were transformed, after nursing on high-mammary-tumor strain foster mothers, into a line having an incidence of over 80 per cent of tumors in subsequent generations. In contrast, in mice of strain C57 black, having a high genetic resistance to mammary tumors and the milk agent, the incidence may be increased to as high as 75 per cent by foster nursing them on animals possessing the milk agent, yet in subsequent generations the incidence rapidly decreases as the genetic resistance overcomes the milk influence.

It was also established that the induction of mammary tumors in male mice injected with estrogens was also dependent upon whether such animals possessed or did not possess the milk influence. Thus, hormonal stimulation of the breast is ineffective in mice not having the agent carried by milk.

Despite the lack of an adequate, rapid bio-assay technique, so that 12 months or longer is required for any particular determination, and despite the lack of stable preparations of the milk agent, depriving the experimenter of a standard sample of reference, much has been learned concerning the nature and properties of the milk agent.

It is known that the agent is present in the milk of high-mammary-tumor strains throughout the period of lactation, although it may vary in concentration during the reproductive period of the mouse. When the young of a high-tumor strain remain with their mothers for varying periods before being foster nursed by resistant-strain females, the young remaining with their mothers for shorter periods develop fewer tumors and at a later average age than do the young permitted to nurse from their mothers for longer periods. Other work, in which measured amounts of milk for high-tumor-strain females were fed to susceptible young by means of stomach tube, confirmed this dose-response relationship. A single oral administration of 0.1 cc. of high-tumor-strain milk to susceptible young mice produced mammary tumors in over 90 per cent of the animals, some eight months later. Evidently there occurs an event in the first few hours of life which leads to the appearance of mammary cancer months later.

The incidence of tumors later is higher in animals given the milk agent intraperitoneally than in those

to which it is given orally. In all experiments with the agent, mammary tumors do not appear with any greater frequency at, or near, the site of injection than in other mammary glands of the animals.

The agent is widely distributed throughout the body of the mouse. Tumors have been produced in susceptible mice following subcutaneous injection of pieces of spleen, lactating mammary gland, and whole blood. Extracts of mammary tumors fed to susceptible mice evoke tumors, a finding demonstrating the presence of the agent in the tumor tissue. The agent does not seem to penetrate through the placenta. Despite its wide distribution throughout the body, the milk agent is apparently not contagious through body contact. Adult mice are more resistant to the milk agent than are those up to six weeks of age. There are pronounced differences in degrees of genetic susceptibility of different strains of mice to the milk agent, and the ability of such strains to transmit the agent.

Material obtained from lactating mammary tissue of high-tumor-strain mice by filtration through Seitz filters is capable of giving rise to mammary tumors in other mice. Desiccation of lactating mammary gland tissue at room temperature resulted in great loss of activity within one week. Extracts of mammary-tumor tissue to which 50 per cent glycerin was added at 8 degrees C. retained activity for nine days, but were inactive 80 days after the procedure. Lyophilized mammary-tumor tissue suspended in water and fed to mice produced tumors. The preparation was still active when tested six months after lyophilization, although the comparative potency with the original material was not determined, but it was inactive one year following the procedure. The agent survived in mammary tumors propagated in the yolk sac of chicken eggs.

The agent is destroyed in mouse milk and mammary tumor extracts heated to 60 degrees C. for 30 minutes. It survives in mouse milk kept at 8 degrees C. for 14 days, is active in extracts of mammary tumors at pH 5.5 to 10.2, but is inactive at pH 4.5. It is not inactivated by acetone or petroleum ether.

#### ULTRACENTRIFUGATION EXPERIMENTS

Ultracentrifugation experiments showed that the agent when obtained from lactating mammary glands and suspended in distilled water was sedimented at 110,000 times gravity for one hour. Extension of the ultracentrifuge studies revealed that there were two principal components for the active tumor extract. A minimum molecular weight of three to four million was estimated for the macromolecular component, while the faster moving component had a molecular weight of at least five million. The variations of sedimentation rate with concentration indicated an asymmetric particle.

Ultraviolet absorption spectrograms and other tests indicated the presence of a ribose-nucleic acid complex in the material from mammary tumors containing the agent. However, since similar components were present in normal tissues, it is not clear whether

the agent inciting mammary tumors in mice is an altered ribose-nucleic acid complex or whether this complex is merely the carrier of the active agent associated with it.

Rabbit serum obtained following injections of saline extract of mammary tumor or with ultracentrifuge pellet material neutralized fresh mouse mammary tumor extracts *in vitro*. Intraperitoneal injections of immune rabbit sera protected susceptible mice against the development of mammary tumors following the feeding of active fresh tumor extract. Recently Shabad announced that the milk agent can be detected by a complement fixation reaction.

Filtration and ultracentrifugation experiments show that the milk agent can be transmitted by cell-free material, and its transmission through many generations of mice implies propagation. These features suggest the action of an agent belonging to or related to the viruses. It is similar to known tumor viruses in its specificity for a certain tissue. It is apparently not involved in the genesis of spontaneous pulmonary or hepatic tumors, or of induced tumors of the lung, subcutaneous tissues, testes, uterus, or the pituitary.

It is not known whether the milk agent continues indefinitely in propagable tumors and whether its presence is required for the continued growth of such transplanted tumors. Preliminary investigations indicate that the presence of the milk agent is not necessary for the propagation of an established tumor, unless a latent phase is postulated. Tumor development is not necessary for transmission of the influence from mother or foster mother to offspring; in fact, under ordinary conditions the causal agent is transferred in the absence of recognized tumor, and this transfer continues for many generations. In this respect, the milk agent acts like a latent virus infection.

Up to the present, no changes in the organism have been described following the introduction of the milk agent. The mice are not sick and gain in weight equally as compared with animals without the milk influence. The onset of the estrus cycles and the character of the cycles for the first three months are unaltered. The adrenal changes following estrogen administrations or castration are not influenced by the presence or absence of the milk agent. The agent does not produce consistent and clear-cut alteration of the architecture of the mammary gland.

#### OTHER FACTORS IN THE GENESIS OF MAMMARY TUMORS IN MICE

The current concept of the etiology of mammary tumors in mice, as expressed by Bittner, is that at least three factors must be present for their development, (1) an inherited susceptibility, (2) hormonal stimulation, and (3) an active agent that is generally transmitted through the milk. All three factors must be present for the genesis of mammary carcinoma.

These three sets of factors, however, by no means exhaust the number of influences that may play a

role in the genesis of these tumors. Of these, nutrition has received the greatest attention. Underfeeding of the total balanced diet or of certain essential constituents thereof, such as sulfur-containing amino acids, reduces the occurrence of mammary tumors.

The mere reduction of a balanced *ad libitum* diet by one-third led to the total suppression of mammary tumors in a highly susceptible strain possessing the milk agent. The mechanism is probably the production of pituitary insufficiency which leads to a lowered level of ovarian secretion and a relative refractoriness of the mammary gland to estrogenic substances.

It has been reported that the incidence of mammary tumors is increased and the average tumor age is decreased in mice kept at an environmental temperature of 68 degrees F. as compared with mice living at a temperature of 91 degrees F. Even such mild environmental changes as crowding or isolating animals are reflected in the incidence and time of appearance of mammary tumors, probably because of the effect of these factors on food consumption and the estrus cycle.

Furthermore, data have been accumulating to the effect that not all mammary tumors in mice are associated with or due to the presence of the milk agent. Perhaps the most striking demonstrations have been with animals injected with methylcholanthrene, a polycyclic hydrocarbon that elicits a variety of tumors in mice at the site of introduction and at distant sites.

In 1939 it was shown that the appearance of mammary tumors was accelerated by methylcholanthrene on the skin of breeding female mice of the dba strain, known to possess the milk agent and genetic susceptibility to mammary tumors. Mammary tumors were not obtained in male mice, nor was the time of appearance of tumors accelerated in nonbreeding mice. Recently mammary tumors have been elicited by percutaneously administered methylcholanthrene in crosses of two genetically susceptible strains deprived of the milk agent.

Strong and his co-workers reported that a single subcutaneous injection of 1 mg. of methylcholanthrene produced mammary tumors in breeding mice of strains that were characterized by a very low incidence of mammary tumors. Such tumors, usually at the site of injection of the hydrocarbon and often mixed with sarcomatous elements, appeared in 45 of 384 females of the NH strain; of 198 untreated breeding mice, none developed tumors. Bonser and Orr in England also reported the appearance of mammary tumors in mice of two strains (IF and CBA) having a very low incidence of tumors in breeding females, following the subcutaneous or intranasal introduction of methylcholanthrene.

The presence of a transmissible agent in the milk of mice of the NH, NHO, and Bonser's CBA strain was excluded by foster-nursing tests. The work suggests that types of stimuli other than the milk agent may produce mammary tumors in mice. The data are not conclusive, however. It is possible that these strains may harbor the agent and not transmit it in

the milk. Experiments in which tumor material and other tissues are injected into and fed to susceptible mice deprived of the agent are indicated for further evidence in this problem.

Andervont made crosses between two genetically susceptible strains of mice that were deprived of the milk agent and obtained mammary tumors in 50 per cent of the animals. Moreover, extracts of 11 tumors were fed to susceptible mice and no tumors of the breast were elicited. It was concluded that even these data did not prove the absence of the milk agent in the genesis of the tumors, although they strongly suggested it.

The occasional occurrence of mammary tumors in mice of genetically resistant strains or in susceptible strains that have been deprived of the agent cannot be considered as demonstrating that the milk agent was excluded in the etiology of the tumors. In the first place, if the milk agent is some abnormal and transmissible constituent that arises from the cells or tissues of the animals, rather than an exogenous virus-like infection, its appearance *de novo* by some process like somatic mutation can be postulated. On the other hand, it is difficult to exclude simpler explanations such as accidental transmission of the agent from other mice by means of blood-sucking insects, or by ingestion of tissues or feces of the agent-harboring animals in the same or nearby cages.

Studies on the genesis of mammary tumors of mice indicate that the neoplastic reaction is the end result of an intricate interplay of at least four factors or complexes of factors:

1. The genetic constitution of the mouse influences mammary tumor development by determining the susceptibility of the mammary tissue to the hormones and the milk agent, by modifying or altering the mechanism of hormonal stimuli, and by determining the animal's resistance to the milk agent and its transmission. Genetic factors influencing this susceptibility are multiple and are expressed in degree. The ability of the animal to propagate the milk agent


and susceptibility to mammary carcinoma may be governed by separate sets of genes.

2. Hormonal stimuli are essential for the development of the breast and, as such, at least for the creation of a suitable substrate for the action and interaction of other factors that eventuate in the development of mammary tumors. There is no evidence that the hormonal complex has to be abnormal, either qualitatively or quantitatively, for the genesis of mammary tumors in mice. Alterations induced in the hormonal balance by the addition or withdrawal of estrogens and other hormones modify the processes that lead to the development of tumors.

3. The milk agent, transmitted through the milk of the mother, is necessary for the appearance of most of the mammary tumors in mice. It should be emphasized that the virus nature of this agent is not established. However, if it is a virus, the appearance of mammary tumors would be influenced by variations in the virulence of the agent under various conditions, and its possible latent stages.

4. Various other environmental factors, such as diet, temperature, and overcrowding, also affect the genesis of mammary tumors, probably by modifying the growth and development of tissues and the hormonal secretions of the animals.

It is quite possible that at least some of the mammary tumors may require different or additional factors for their appearance and, conversely, that some mammary tumors do not require the presence of the milk agent and are of entirely different etiology. Our knowledge has now reached the stage where we can control most of the factors while varying the one under consideration. This allows a step-by-step evaluation of each of the factors. The shifting of attention from the genetic to the hormonal and thence to the milk influence has been due more to historical developments than to the established relative importance of these different influences. It is clear, however, that there is no single cause of mammary cancer of the mouse, but that the neoplastic reaction is the end result of a complex interplay between many factors.



## What Are the Basic Needs for Public Health in California?

DWIGHT M. BISSELL, M.D., *San Jose*

TO meet the need for an organization to promote and safeguard public health in California, the State Legislature more than three-quarters of a century ago established the California State Board of Public Health. Thomas M. Logan, who had been president of the California Medical Association, was the first permanent secretary of this board, which numbered among its members such distinguished men as Henry Gibbons, J. F. Montgomery of Sacramento, and L. C. Lane of San Francisco.

Created at the beginning of the bacteriological era, the board was concerned with the many causes of death such as consumption, which was then the outstanding killer, other diseases of the lungs, diseases of the stomach and bowels, diphtheria, scarlatina, and "typho-malarial" fevers. The board recognized the value of collecting vital data and interpreting it as one of the basic essentials of good public health. Because it was difficult for the secretary to secure good data from official records, he went to great effort to get statistics from lodges which insured their members, from local boards of health, from practicing physicians, and from every other accessible source. The data were compiled in carefully prepared charts.

Indicative of the importance which was attached to vital data at that time is the following quotation from Doctor Logan's annual report of 1870: "Faithfully collected and skillfully managed, these statistics furnish accurate knowledge of the most important facts of each citizen, and also the data upon which governments and communities, as well as individuals, may base their action. . . . Life, health, and property, all that man holds dear, are thus we see involved in these statistics."<sup>1</sup>

Today, it is just as important to have accurate birth and death data, morbidity data, including reports of rheumatic heart disease, crippled children, cancer, or any other diseases where the collection of vital data could be of assistance to any part of the medical profession in solving the problem of disease, reducing its occurrence and prolonging life. Accurate, vital data is necessary to guide public health activities and to show the places where emphasis must be placed in controlling particular diseases. Birth and death records are unusually complete in most parts of California. It is hoped that as all physicians see more value in morbidity reporting, it too will be greatly improved in many areas.

Thomas Logan's laboratory differed greatly from our modern public health laboratory, for it consisted for the most part of instruments for predicting the weather. Since he began his term of office just

before the time that bacteriology became a science, it is not surprising that he thought that the weather greatly influenced the spread of communicable diseases. Indeed, much is still being written about the influence of weather on disease. Quoting from his report: "During the prevalence of the epidemic, the most remarkable fact in regard to this region [Santa Barbara] is the seeming impossibility for epidemics to visit it. The smallpox has ravaged the whole country three or four times since 1843. It has been singularly virulent in San Luis Obispo, the first town north of us, and also in Los Angeles, which lies in the next county south. During the prevalence of the epidemic, persons have come from these neighboring towns with the seeds of the disease, and have died in Santa Barbara within a few days of arriving, but some antiseptic property and the climate has prevented the contagion, and it has never spread. Scarlatina and diphtheria are unknown here. . . . The climate seems sufficient to cure the malady. During a residence of 20 years, I have only seen one case of membranous croup, and heard of two others."

### GOOD LABORATORIES ESSENTIAL

Although meteorology has little place in the ordinary public health laboratory of today, the scientific basis for the determination of the causative agent of disease was begun in health departments in that day. In the light of knowledge of bacteria, viruses, and other disease-causing agents, the greatest need for any health department is a well equipped and staffed public health laboratory. No health officer would attempt to provide a pure milk supply or water supply or to control the communicable diseases without public health laboratory facilities. Most of the smaller public health laboratories find that routine laboratory procedures are adequate and that research procedures should be turned over to a state laboratory which is well prepared to carry out such work as laboratory studies in the field of encephalitis and other related virus diseases. In order to control syphilis, laboratory procedures are so essential that health departments have furnished private physicians and everyone concerned in the problem of diagnosing this disease with laboratory service whenever the patient is unable to pay a private laboratory fee.

The problem of maternal and child health was not overlooked by this first Board of Health in California. In a chapter entitled "Female Hygiene" in which an attempt had been made to point out the unnecessary illness following childbirth, the report says: "Towards obviating the perpetuity of these evils, which have existed from all time and in all places, and which strike at the vitals of society, we believe that it is our plain duty to disseminate such hygienic counsel, and if they may not have the power

<sup>1</sup>Read before the section on Public Health at the 76th Annual Session of the California Medical Association in Los Angeles, April 30-May 3, 1947.

of always preventing the misfortunes to which female life is subject, will certainly weaken the morbid influences which produce them." The State Board of Health was so concerned with maternal and child health that it brought Doctor H. R. Storer of Boston to California for two lectures on female hygiene in order to prevent the terrific maternal and infant mortality which existed in that day, and to teach the medical profession something about gynecology. In his lecture he put constant emphasis on the prevention of disease.

Today, although there is a better understanding of ways to improve maternal and child health, the need for protecting the maternity patient from illness and death, and the need for giving the baby a start in life which will make him a healthy, well citizen remains a primary interest of the state, as it was in 1870.

With the work of Sir Edwin Chadwick, in England, in the early part of the 19th Century, and of Lemuel Shattuck in the United States at about the same time, the need for a pure water supply, adequate drainage, and, in general, the prevention of disease through sanitation, was brought to the forefront. Shattuck published his writings in the *New York Journal of Medicine* in 1851, and it was called "an epitome of Sanitary Science." Twenty years after the publication of this report, the secretary of the Massachusetts Board of Health based his recommendations for the development of public health legislation in that state on Shattuck's writings. Likewise, the California State Board of Health, which was established a few months after the Massachusetts Board of Health, based its health laws on this same work. To quote: "Massachusetts has been the first state to become awakened to the danger of the situation, and the 'Memorial of the Boston Sanitary Association' to the Legislature, in 1861, and from which I have freely drawn in preparing these remarks, has been answered by the institution of a State Board of Health, whose first annual report I now present for your consideration: You will perceive that the late action of our state has been based on that of Massachusetts, and we may, with reason, congratulate ourselves upon California being the first state to follow in the footsteps of the most enlightened Commonwealth in America." Empirical facts seemed to show that environmental sanitation was an important factor in the health of the people of California. Bacteriology later proved the reasons for these observations which had been made earlier by these men of science. However, like many another action based on half-truths, sanitation was sometimes carried to extremes, as evidenced by the fact that the streets of Philadelphia were thoroughly washed and scrubbed in order to stop an epidemic of yellow fever. Each year, environmental sanitation procedures should be reviewed in the light of newer discoveries and newer knowledge in the field of communicable disease and the spread of disease.

New problems are presented each day in environmental sanitation: The discovery of new insect vectors in the spread of encephalitis suggests new fields

for attack; experience may dictate the abandonment of a procedure found to be ineffective. Constantly health departments must evaluate their procedures in the field of environmental sanitation to determine that which is basic and that which is either the responsibility of other divisions of government or completely unnecessary. Certainly well planned, well directed, and well scrutinized environmental sanitation is a basic function for every health department.

Probably the keystone in any health department is the control of communicable disease. For many years in California, the public health organizations have made every effort to control childhood diseases, adult diseases such as tuberculosis, venereal diseases, typhoid fever, dysentery, malaria and every other communicable disease. Although the first California State Board of Health did not have the contributions of bacteriology and virology which are used today, nevertheless, it recognized these sciences as essential parts of Public Health. Isolation and quarantine as well as fumigation, were practiced extensively, while today we have in many instances been able to substitute vaccination, immunization and chemotherapy for these older procedures. Actual treatment today in the field of tuberculosis and venereal diseases has been instrumental in preventing their spread. While many control measures for communicable diseases are known, much research still needs to be done. Pandemics of influenza still may sweep the world: the common cold still produces more days of time lost than any other communicable disease in the United States; venereal diseases attack an increasing number of the population. The control of communicable disease is still one of our basic Public Health needs.

One of the first duties at the conclusion of a year's work by the California State Board of Health was the preparation of an annual report which was designed to be "A readable and convenient size for public use"—a report of 203 pages, which cost a considerable share of the total Health Department budget to publish. This publication was not the first effort of the Board of Health in health education, for the board had previously held lectures for the medical profession, had conducted a great deal of correspondence with various lodges and fraternities in California, had implemented many other community groups to assist in prevention of disease. The whole tone of this first report is one of education, rather than one of establishing laws, even though it probably would not have been recognized as public health education in the meaning of the term as it is accepted today. Thus, basically, public health needs have remained essentially the same for 78 years, but in the light of research and the changed concepts of the cause of disease, the interpretation of basic Public Health has changed. To environmental sanitation, some health departments have added industrial hygiene. Industry has brought with it many problems as well as many benefits to communities. The effect each industry has upon the lives of the people who work in it, as well as the effect on persons who live near it, must be recognized. In the

prevention of disease and illness, dental and mental health play an important part in urban population groups today, even though these fields were recognized only to a small degree in 1870.

Although many parts of California have realized the need for public health services, they have not been able to finance these basic needs. Inadequate revenue, overwhelming problems of public health, and many other factors have interfered with the adequate fulfillment of these basic needs. Public health has become a statewide problem as well as a local one with the development of means of travel by which people can travel between widely separated communities within a few hours. With the widening of scope, it has become necessary to use more state and federal funds in local health departments to solve the basic needs for Public Health in the state and the nation.

Although supplying the basic needs for public health requires well trained personnel, low salaries have left many health departments, which otherwise would meet basic needs, understaffed. Even if salaries were adequate, a large number of persons would have to be recruited and trained.

Much has been done to accomplish the basic needs for public health in many areas of the state, but the continued active support of the medical profession, which originated the California State Department of Public Health as well as many of the local boards of public health in California, is needed. It will

continue to be through the leadership of organized medicine in this state that public health will flourish, that citizens of this state will not die unnecessarily or suffer unnecessary illnesses.

#### SUMMARY

Basic Public Health needs, which were recognized by the founders of Public Health in California, have developed and expanded. Today they are: (1) Complete registration of births, deaths, and morbidity, as well as analysis and interpretation of this data; (2) public health laboratory facilities to assist and guide the local health department with its analyses and reports; (3) adequate environmental sanitation, with recognition and evaluation of those conditions which are merely nuisances, yet are the responsibilities of public health departments; (4) the protection of maternal and child health; (5) health education, which has become as vital as laws and ordinances in the protection of public health, especially in securing community action to achieve the desired results in all fields of public health; (6) control of communicable diseases through prevention and treatment.

All the basic needs for public health can only be achieved when adequate funds, adequately trained and adequately paid personnel are available.

City Health Department, San Jose.

#### REFERENCE

1. First Report, Board of Health of California, 1870-1871.



## Psychogenic Rheumatism: The Musculoskeletal Expression of Psychoneurosis

EDWARD W. BOLAND, M.D., *Los Angeles*

FOR the development of a psychosomatic disorder there are three requisites: (1) a psychoneurotic predisposition; (2) an exciting emotional conflict; (3) restriction of outward expression of the conflict. All individuals, whether normal or psychoneurotic, seek relief from the mental suffering occasioned by disturbing life problems. When emotional tension is expended by outward expression, muscular or verbal, all is well. By taking some form of action or doing something about it, the individual "gets it off his chest" and feels better. But if emotional dissipation is constantly restricted, the tension gradually mounts, and in a psychoneurotic type of individual especially, the development of somatic complaints may be the eventual outlet. With the emergence of bodily symptoms the psychoneurotic tends to focus his attention on them and thereby is partially relieved of his inner mental tension. The psychophysiologic mechanism by which psychic disturbances are displaced into physical symptoms is not fully understood—undoubtedly it is complex. Recent studies suggest that emotions may affect the autonomic nervous system either directly or through the endocrine system, thereby producing increased muscle tension, vasospasm or metabolic changes in various organs and structures.

Physicians in general are familiar with those functional symptoms or symptom complexes which are expressed in various systems, exclusive of the musculoskeletal system. The idea that structural changes in certain organs may result from psychic disturbances is also being accepted. The following is a partial list of disorders now recognized as psychosomatic: Gastrointestinal system—functional dyspepsia, anorexia nervosa, irritable colon, cardiospasm, pylorospasm, certain cases of peptic ulcer, and of chronic ulcerative colitis; cardiovascular system—neurocirculatory asthenia, effort syndrome, functional arrhythmias, acrocyanosis, Raynaud's disease, and certain cases of hypertension; respiratory system—certain cases of asthma, allergic rhinitis, and chronic bronchitis; Genito-urinary system—enuresis, vaginismus, certain cases of impotence, and dysmenorrhea; nervous system—functional headaches, migraine, hysterical anesthetics, paresthesias, paralyses, certain cases of epilepsy and chorea, etc.; skin—certain cases of pruritus, eczema, urticaria, and angioneurotic edema.

Physicians are not so familiar, however, with the fact that disabilities of the locomotor system fre-

quently result from psychic causes. Too often functional musculoskeletal symptoms are mislabeled as arthritis or some other organic disease. By failing to recognize the true nature of the complaints and by treating the patient for arthritis the physician fosters rather than alleviates the disability. Psychogenic rheumatism may be defined as the musculoskeletal expression of functional disorders, tension states or psychoneurosis. It implies that such symptoms as pain, aching, stiffness, muscular fatigue, subjective sense of swelling or limitation of motion may be caused, intensified or perpetuated by mental influences. The term should be restricted to cases in which the actual disability results from functional symptoms. The usual minor nervous reactions which develop in patients with chronic arthritis should not be included—unless the functional overlay grows to the point that it becomes the major incapacitating factor.

Psychogenic rheumatism does not embrace in its concept the idea that organic joint disease may result from mental conflicts. That rheumatoid arthritis may at times be a psychosomatic disease has been suggested, but most authorities agree that psychic disturbances alone cannot cause the disease. Grief, worry or anxiety may occasionally act as precipitating agents and in some cases appear to be temporally related to fluctuations in the clinical course of rheumatoid arthritis. But while emotional upsets may act as trigger mechanisms to set off the disease process, it is probable that the body must first harbor the causative factor (infectious agent or whatever the factor is). In this sense rheumatoid arthritis cannot be considered as a psychosomatic disease. Actually in our experience, contrary to that of others,<sup>3,7,12</sup> emotional crises have seldom been related temporally to the onset of rheumatoid arthritis. In a special study<sup>5</sup> of possible precipitating factors in 100 soldiers with rheumatoid arthritis an emotional upset was considered as the possible factor in only one instance, much less often than other factors (infection 12 times, physical exposure nine times, joint trauma three times, physical exhaustion two times, etc.).

### INCIDENCE

Psychogenic rheumatism must be included among the common rheumatic disorders, along with osteoarthritis, rheumatoid arthritis, primary fibrositis and rheumatic fever. Its incidence was appallingly high among soldiers with musculoskeletal incapacities admitted to military general hospitals and special arthritis centers. At such installations medical officers

Presented at the Postgraduate Course on Rheumatic Diseases sponsored by the American College of Physicians, Mayo Clinic, Rochester, Minnesota, March 23-28, 1947.

were especially on the outlook for psychogenic disorders and the incidence of functional symptoms displayed by the muscles and joints was found to be comparable to that demonstrated by other systems such as the gastrointestinal and cardiovascular. Psychogenic rheumatism was the most frequent cause of disability (34 per cent) in 450 consecutive soldiers with rheumatic complaints admitted to an army general hospital located in the United States.<sup>1</sup> These patients came to the hospital with a previous diagnosis of organic disease, usually arthritis. In a general hospital located overseas, Short<sup>13</sup> found that one-sixth (16.5 per cent) of 309 soldiers with articular complaints were incapacitated by psychogenic rheumatism, an incidence equalling that for osteoarthritis and exceeded only by that for rheumatoid arthritis. Flind and Barber<sup>6</sup> reported that in about 42 per cent of patients admitted to a Royal Air Force special rheumatic center, the disability was essentially psychogenic. A statistical variance of interest was that reported by Copeman<sup>4</sup>: At a British general hospital in France, where emotional factors must have been plentiful, 70 per cent of admissions were diagnosed as fibrositis and no mention was made of functional musculoskeletal complaints. Evaluated in the light of the military experience of others, many of his patients with "fibrositis" must have had psychogenic rheumatism. At the Rheumatism Centers of the United States Army, approximately one out of every seven soldiers was disabled because of psychogenic rheumatism. It was the second most common diagnosis at the Center at the Army and Navy General Hospital (exceeded only by rheumatoid arthritis) (Table 1)<sup>2</sup> and the third most common at the Center at Ashburn General Hospital (being exceeded by rheumatoid arthritis and osteoarthritis).

TABLE 1.—Incidence Rheumatic Diseases, Army Rheumatism Center, Army and Navy General Hospital

	Based on 7,000 Consecutive Admissions	
	No. Cases	Percent
Rheumatoid Arthritis (Peripheral and Spondylitis) .....	2,592	37.0
Psychogenic Rheumatism .....	1,021	14.6
Fibrositis (Primary and Secondary) .....	972	13.9
Osteoarthritis (Primary and Secondary) ..	772	11.0
Rheumatic Fever .....	82	1.2
Gouty Arthritis .....	48	0.7
Gonorrheal Arthritis .....	45	0.6
Rarer Arthropathies .....	95	1.3
Joint Tumors .....	20	0.3
Miscellaneous Conditions .....	653	9.3
Unclassified Arthritis .....	553	7.9
No Disease .....	125	1.8
	7,000	100.00

The incidence among civilian patients probably is almost as great as among soldiers, although as yet there are very little statistical data. Halliday,<sup>8</sup> working as a medical referee with the insured population of Scotland, found that 39 per cent of 145 consecutive patients labeled as having rheumatism (including fibrositis, lumbago, sciatica and neuritis) were in-

capacitated because of psychoneurosis. The incidence of "psychoneurotic rheumatism" was still greater (40-60 per cent) when only those on the sick list for two months or over were considered. A recent statistical survey of 500 consecutive private patients referred to the author because of rheumatic disease, discloses that the diagnosis of psychogenic rheumatism was made in 13.4 per cent. The incidence was less than that for osteoarthritis (25 per cent), rheumatoid arthritis (23.4 per cent) and primary fibrositis (18.2 per cent), but was far greater than for any of the remaining types. This series contained very few insured patients and no compensation cases.

#### DIAGNOSIS AND CLINICAL PICTURE

The diagnosis of psychogenic rheumatism is not made by excluding organic disease alone; positive evidence for psychoneurosis must also be established. Diagnosis depends on: (1) absence of organic disease or insufficient disease to account for the disability, (2) qualitative functional characteristics of the disability, (3) positive diagnosis of psychopathology.

*Absence of Organic Disease or Insufficient Disease:* Psychogenic rheumatism may be divided conveniently into three subtypes: (1) Pure—when clinical, laboratory and roentgenographic evidence of organic joint disease or muscle abnormalities are lacking; (2) Superimposed—when incapacitating psychogenic symptoms are associated with non-disabling organic changes; (3) Residual—when disability is perpetuated due to functional symptoms which take over after the disease process itself has subsided. The relative frequency of these subdivisions (among soldiers) based on 1,021 cases of psychogenic rheumatism at the Army Rheumatism Center, Army and Navy General Hospital, was as follows: Pure, 425 (41.6 per cent); superimposed, 404 (39.5 per cent); residual, 192 (18.9 per cent). A similar relative incidence probably occurs with compensation cases but among private patients the pure type is more common.

Disabling functional complaints are superimposed most frequently on the less serious rheumatic diseases, especially primary fibrositis and osteoarthritis, diseases which of themselves usually have nuisance value only; rarely are they superimposed on a serious articular disease such as rheumatoid arthritis (Table 2). By far the most common association both in civilian and military practice is with fibrositis. This

TABLE 2.—Diseases Associated with "Superimposed" Psychogenic Rheumatism\*

Rheumatoid Arthritis .....	1
Osteoarthritis .....	10
Primary Fibrositis .....	33
Secondary Fibrositis .....	2
Unclassified Arthritis .....	3
*Miscellaneous .....	14
	63

\* Unstable lower back, sciatica of undetermined cause, ruptured intervertebral disc, internal derangement of knee, traumatic synovitis, pes planus, scoliosis, etc.

syndrome, which rarely is incapacitating, except during acute phases which do not persist indefinitely, may engender chronic invalidism in the psychoneurotic individual. The overlay of functional symp-

TABLE 3.—Diseases Associated with "Residual" Psychogenic Rheumatism

Rheumatoid Arthritis .....	1
Primary Fibrositis .....	5
Unclassified Arthritis .....	1
Fractured Spine .....	2
Minor Back Injuries .....	7
Fractured Ankle .....	2
Traumatic Synovitis .....	2
	20

toms may be so intense that ability to carry on may be less than in patients with well developed rheumatoid arthritis. The differentiation between psychogenic rheumatism and primary fibrositis often is not easy, and when the two conditions co-exist attempts to appraise the proportion of the disability caused by each are even more difficult. Another frequent association is with osteoarthritis. Minimal spurring in the lumbar spine or knees may be accompanied by marked and persistent disability, far out of proportion to that usually seen with such changes, especially if the patient is aware of the findings and develops an anxiety reaction to them. Such gross incongruities between the severity of the symptoms and the structural changes are immediately striking to the experienced physician.

Residual psychogenic rheumatism, in our experience, most frequently follows trauma to the musculoskeletal system; less often does joint disability persist after subsidence of a primary rheumatic disease such as rheumatoid arthritis, rheumatic fever, gout, etc. (Table 3). After some minor injury, the symptoms of which ordinarily would subside in a few days or at most a few weeks, the patients may have intractable symptoms for months or even years. Among soldiers persistent disability following minor back injuries was particularly common; often recovery failed to result even after prolonged bed rest or immobilization. In such cases a gradual change in the nature of the symptoms usually develops as time goes on. Although the initial symptoms may be typical of organic disease, the complaints eventually assume obvious functional characteristics, and associated psychoneurotic manifestations in other systems may appear.

**Functional Characteristics of Presenting Disability:** The most common symptoms are "pain," tenderness, stiffness, limitation of motion, subjective sense of swelling, muscular fatigue and weakness of an involved part. The complaints more often are generalized, are "all over," but may predominate in one region or another. Sometimes they are vague in quality and location—"Can't quite tell you where it is or what it's like." Mental distraction at a movie, football game or social gathering may give temporary relief, and exacerbations with or following episodes of emotional stress or mental fatigue are

almost the rule. Pain is practically a universal complaint but on close questioning often is found to have functional characteristics. It may be fleeting or constant, "bad all the time," "present day and night." Salicylates often have no effect and local heat and other physiotherapeutic measures fail to give relief or may "make things worse." The distribution of pain often is not anatomical; instead of being located in or about joints, for example, it may skip "here, there and elsewhere" with utter disrespect for anatomy. Such sensations as weakness, fatigue, pricking, tingling, numbness, deadness, burning, fullness and pressure may be interpreted by the patient as pain. Analysis may show that the victim does not have pain at all in the strict sense, but only paresthesias. When aching and stiffness are the predominant symptoms usually they fail to fluctuate with external environmental factors such as weather changes and physical activity. The discomfort in patients with psychogenic rheumatism almost invariably is augmented by use of the involved part.

On physical examination varying degrees of muscle spasm may be found, and when marked may be accompanied by limitation of joint motion. A tense, anxious, defensive or antagonistic attitude is often apparent. On examination the patient may be fearful or resistant, may cry out with pain on palpation or movement of a normal appearing joint, may over-react, jump, grimace or groan on light palpation of the erector spinae muscles, or may grasp the examining hand in protest to being hurt; in general, a "touch-me-not" reaction. In soldiers, as in compensation cases, major hysterical conversions as manifested by bizarre limps, gaits and postures are displayed occasionally.

**Positive Diagnosis of Psychopathology:** To establish positive evidence for the diagnosis of neurosis is just as important as ruling out organic disease. The functional nature of the presenting complaints as already discussed, the presence of other psychoneurotic symptoms, the patient's past history and family history of emotional instability, and the presence of an exciting mental conflict, are considerations in this respect.

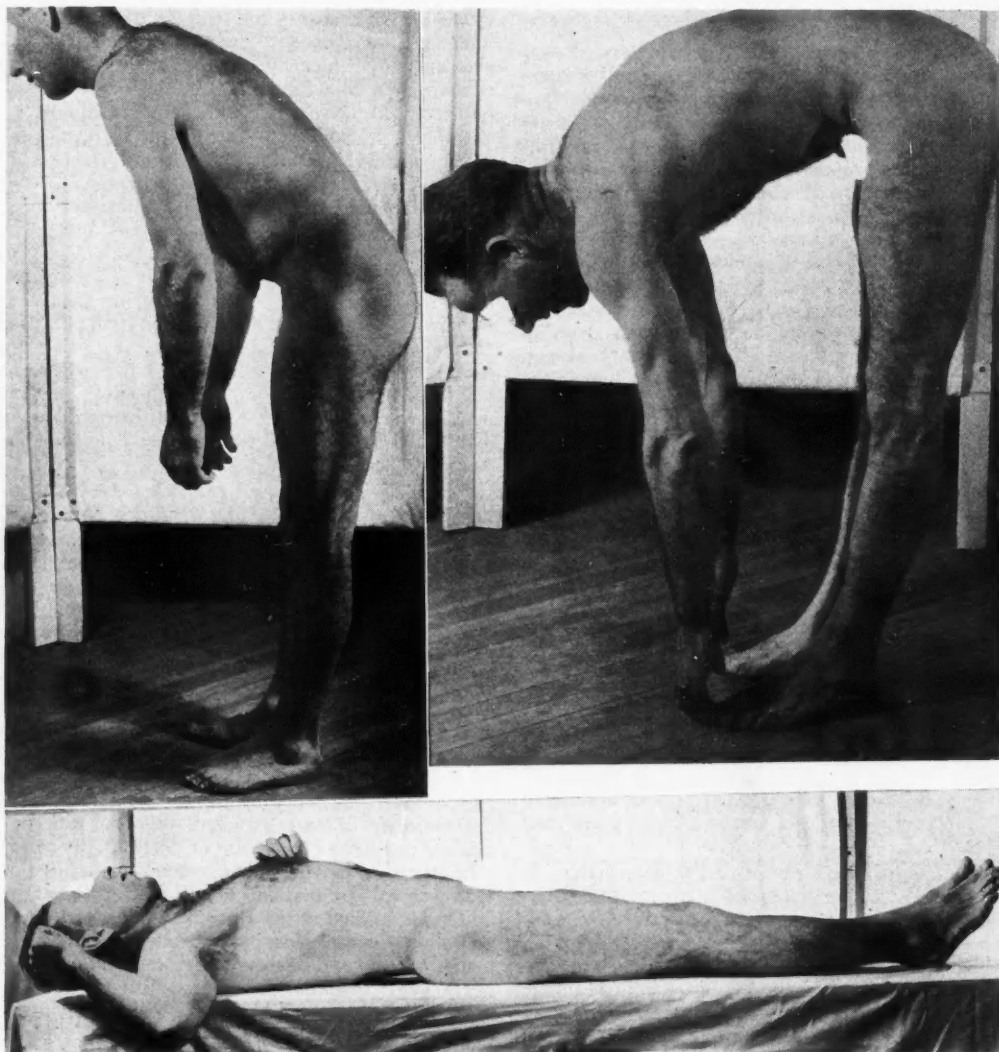
**Evidence of Coexisting Psychoneurosis:** Associated functional manifestations (headaches, dyspepsia, globus hystericus, sighing respirations, precordial pains, insomnia, tremors, cold moist hands and feet, anxiety, nervousness, etc.) are present in the majority of cases. Such psychoneurotic complaints were present in 46 of 50 (92 per cent) soldiers with psychogenic rheumatism studied at Hoff General Hospital and in 179 (89.5 per cent) of 200 cases studied at the Rheumatism Center, Army and Navy General Hospital. An interesting test was made by Flind and Barber<sup>6</sup>: Seventeen patients with psychogenic rheumatism were submitted to a swimming test; all but one had to give up "after a few yards" because "it was too frightening." Weiss<sup>14</sup> attempted to make precise psychiatric diagnoses in 40 patients with functional musculoskeletal disabilities; hysteria was diagnosed in 16 patients, anxiety states in 11, hypochondriasis in two, psychotic de-

pressions in two, an "underlying neurotic character" without specific classification in nine.

**Psychoneurotic Predisposition:** In practically all instances evidence of previous neurotic traits may be elicited. Such traits present in childhood and persisting to adult life suggest a liability to neurotic reaction under stress. Past histories of enuresis, somnambulism, nightmares, temper tantrums, morbid fears (fear of darkness, of death, or of illness), stammering, fainting spells, etc., are given by many. Boland and Corr<sup>1</sup> found that approximately one-third of their patients had experienced disabling psychoneurotic or hysterical episodes prior to the onset of psychogenic rheumatism. These ranged

from attempted suicide to interruptions in schooling because of "nervousness."

Halliday<sup>9</sup> believes that most patients with psychogenic musculoskeletal disabilities have similar personalities. He pictures them as displaying obsessional trends with self-limitation and restriction of feeling. As children they are said to be shy and in later life are over orderly, punctual and clean, tending to live quietly, often as "home birds." He contrasts this personality with that found in patients with functional dyspepsia or peptic ulcer, described as showing compulsive drives, over-emphasized activity, efficiency and independence; being especially susceptible to threats against security and to changes of



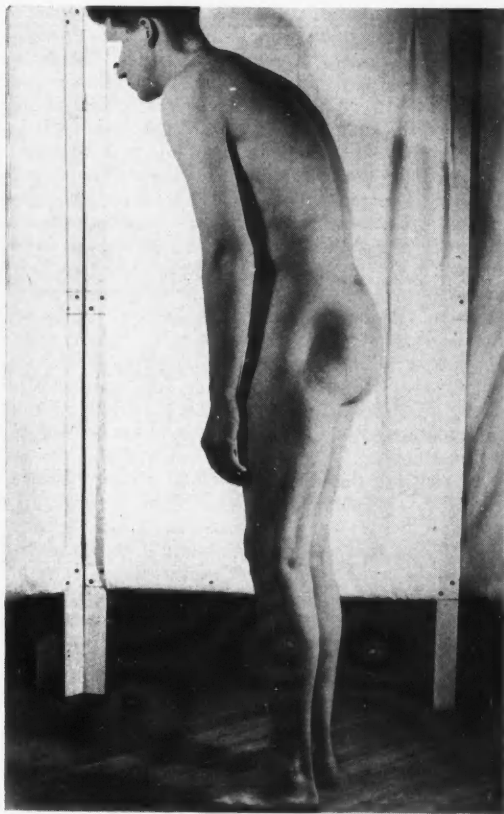
Upper left—Hysterical bent back (camptocormia). Patient unable to straighten back while in standing position. Upper right—Although unable to straighten spine while standing, the same patient is able to accomplish complete anterior flexion without discomfort. Lower—Same patient demonstrating ability to straighten back in recumbent position. Note the normal lumbar lordosis.

authority. However, various types of personalities have been found in our patients. Not all of them have been "mousy fellows"; some have been dynamic extroverts and others frank exhibitionists, especially those displaying gross hysterias.

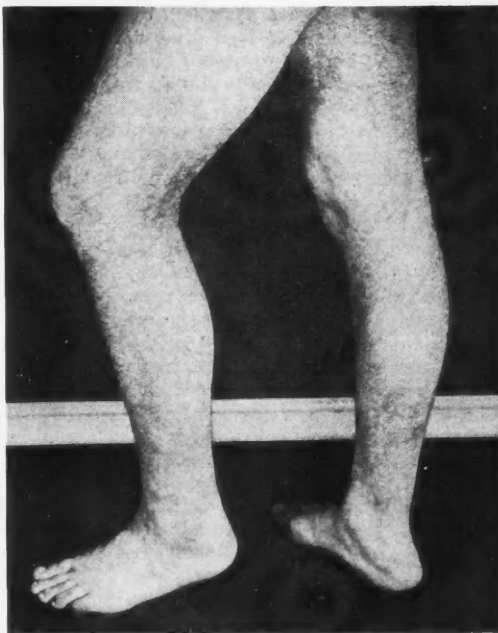
**Precipitating Emotional Factors:** These are often difficult to ferret out, as the patient may be unaware of them himself. Multiple interviews are frequently necessary to elicit the environmental factors or external events which precipitated a deep-seated emotional reaction. Only by following the sequence of happenings prior to the onset of symptoms can clues be found in some instances. Then, once the clue is found, pressing direct questions will often cause the patient to expose the disturbing event or circumstance. The precipitating factors which cause frustration in civil life are manifold; most of them provoke a sense of grief, rage or guilt. Hensch<sup>10</sup> cites a few examples: "A stern parent interfering with a child's social development; an unattractive girl dominated by her protective mother and afraid the boys were passing her by; a person who previously was 'impressed' by her parents and who considered herself 'impressed' by her in-laws; a veteran forced by the housing shortage to live with in-laws

(enough to give anyone psychoneurosis!!); a common American trouble—one vacation in ten years'; sexual impotence of the patient or the marital partner; June-December marriages; a spinster who had given up marriage to care for her mother whom she had thereafter unconsciously come to hate; fear of an unfaithful, drunken husband; a patient whose relative died of 'rheumatism' and who feared that his own rheumatism might also be fatal." Among military personnel, additional factors existed to induce anxiety. These included: (1) the loss of security or love caused by separation from a wife, family or home, (2) the loss of ability to control one's personal destiny, (3) resentment at authority especially when such is invested in those felt to be inferior, (4) fear of bodily harm, (5) confusion resulting from strange surroundings, crowding, regimentation and competition, (6) the concern for the safety and financial well-being of dependents, (7) indignation over lack of promotion, and (8) worry over fidelity of wife or fiancée.

**Psychopathology:** Weiss regards "smoldering resentment" to be the common basic psychopathology in psychogenic rheumatism. He pictures resentment as breeding chronic discontent and a feeling of rebellion. But the outward display of rebellion is inhibited for one reason or another, such as filial respect or fear of authority. The continuous sense of hostility, according to his concept, prevents the patient from relaxing, with the result that constant muscle tension develops which leads to symptoms of aching, tenseness and muscular fatigue. Regard-



Another example of hysterical bent back. Postural correction resulted following narcosis studies and suggestion.



A hysterical bent knee. The patient could straighten the knee fully while lying but not while standing. He walked with a bizarre gait, throwing the foot outward and semi-squatting with each step.



Left—Hysteric deformity of the right hand of 11 months' duration. Under sodium amytal narcosis the patient was able to move the fingers normally. Right—Roentgenograms of the involved hand showing marked diffuse secondary bone atrophy from disuse.

less of the underlying psychologic mechanism, the somatic effect of chronic muscle spasm appears plausible. This can be appreciated by most physicians who have experienced muscular aching and fatigue after periods of prolonged nervous tension.

#### LOCALIZATION OF SYMPTOMS

It is interesting to speculate why the psychoneurotic individual may subconsciously choose the musculoskeletal system for expression of somatic symptoms. In most instances fixation is probably prompted by past or present experiences, or by expediency. In cases of superimposed and residual psychogenic rheumatism, a present or immediately preceding example of a type of disability is suggested to the patient. In cases of pure psychogenic rheumatism such examples, though not as direct, may be found also. In one-third of our patients<sup>1</sup> examples of arthritic invalidism were present in the immediate families and approximately two-thirds gave a history, recent or remote, of traumatic or inflammatory joint disease in their past lives. Had examples of stomach trouble existed instead, it is probable that some form of functional dyspepsia rather than psychogenic rheumatism would have developed in response to the same emotional stresses.

The back and lower extremities were the favored sites for localization of the predominant complaints in soldiers. Boland and Corr<sup>1</sup> found that in 38 of 50 soldiers (76 per cent) the predominant symptoms were located in these regions. They suggested that this election of somatic fixation bore an expedient relationship to the attempted solution of an emotional conflict, "as these structures are synonymous with marching and soldiering."

#### DIFFERENTIAL DIAGNOSIS

Primary fibrositis is the principal rheumatic condition from which psychogenic rheumatism must be distinguished. In both conditions the diagnosis is based largely on the qualitative characteristics of subjective complaints and differentiation may require a detailed analysis of the symptoms. Hench

and Boland<sup>11</sup> have listed the chief points which allow these two syndromes to be differentiated. Table 4 is adopted from their summary.

#### TERMINOLOGY

The term psychogenic rheumatism has not suited all rheumatologists and psychiatrists. Some<sup>14</sup> contend that the word rheumatism is too vague and already is surrounded by enough opprobrium without linking the word psychogenic to it. But functional muscle and joint complaints are often vague too, and the word psychogenic at least points to the origin of the symptoms. The word psychosomatic is objectionable because more and more it is being used to imply that actual organic changes are caused directly by mental influences. Whereas, this may be true in certain structures, evidence does not support those who suggest that certain common organic joint diseases may represent psychosomatic disorders. Psychiatrists prefer to use psychiatric diagnoses based on underlying psychologic processes to catalogue the musculoskeletal symptoms, using such terms as anxiety-depressive state, conversion hysteria, and hypochondriasis. However, internists and orthopedists cannot be expected to be trained psychiatrists any more than psychiatrists can be expected to be trained rheumatologists.

In practice the diagnosis of functional disease starts by recognizing that the complaints and findings do not conform with those found with organic disease. The first tip-off is the qualitative characteristics of the bodily symptoms; exploration of psychologic deviations comes later. Designations such as "psychoneurosis, anxiety state, as manifested by musculoskeletal symptoms," may be more accurate but are cumbersome. Although objectionable to some, the term "psychogenic rheumatism" is convenient and compact. If its limitations are understood it can serve as a useful label, at least until a better one comes along. It matters little if some object to the name, so long as they accept the fact that all aches and pains in and about muscles and joints are not due to organic disease of these structures.

2210 West Third Street.

TABLE 4.—*Differentiating Points Between Psychogenic Rheumatism and Primary Fibrositis*

	PSYCHOGENIC RHEUMATISM	PRIMARY FIBROSITIS
Patient's attitude:	Tense, apprehensive, "subjective," often antagonistic or defensive.	Usually "objective" and cooperative.
Chief symptoms:	Often vague. On analysis "pain" may consist of such sensations as burning, tightness, fullness, numbness, weakness, tingling pressure or "queer feeling." Muscles and joints may be "tense" rather than stiff.	Usually definite. Consist of aching, soreness and stiffness.
Factors influencing symptoms:	Symptoms, in general, fluctuate with changes in internal or mental environment: Tend to be worse during or following emotional stress, and temporarily relieved by mental distraction (theater, social gathering, football game, etc.).	Symptoms fluctuate with changes in external or physical environment: Made worse by physical inactivity and damp weather, and ameliorated by dry warm weather, physical activity, local heat, etc.
Degree of Disability:	Variable but may be severe and always disproportionate to physical findings. Disability may be greater than with serious joint disease.	Usually not marked—symptoms are a "nuisance" to patient.
Constancy of complaints:	Tend to be constant, "bad all the time" or "getting worse." Exercise almost always aggravated.	Subject to exacerbations and remissions—may last days or weeks, then disappear. Intensity varies during day; worse in morning and after physical inactivity, better after mild exercise.
Location of symptoms:	Often not anatomical, may "skip here, there and elsewhere."	Anatomical. If symptoms migrate they do so with respect for anatomy of joints and for muscles.
Response to examination:	Patient often over-reacts, is tense, and resistant; a general "touch-me-not" attitude.	Cooperative. Pain and tenderness are consistent and mental distraction is without effect.
Response to treatment:	Variable but often nothing relieves. Salicylates frequently are ineffective and local heat may make worse; alcoholic beverages relieve temporarily.	Temporary relief from salicylates, local heat and other physiotherapy.
Association functional complaints:	Almost invariably present, e.i., nervousness, tremulousness, cold, moist hands, insomnia, globus hystericus, headaches, sighing respirations, bizarre postures and limps, etc.	Usual minimal or absent.
Positive evidence of psychopathology:	Present, e.i., psychoneurotic predisposition, precipitating emotional conflict, underlying resentment or frustration, coexisting anxiety, depressive hypochondriacal or hysterical reaction, etc.	Usually absent.

## REFERENCES

1. Boland, E. W., and Corr, W. P.: Psychogenic rheumatism, *J.A.M.A.*, 123:805-809 (Nov. 27), 1943.
2. Boland, E. W., Stephens, C. A. L. Jr., and Hench, P. S.: The incidence of rheumatic diseases among soldiers: Based on 7,000 consecutive admissions to an army rheumatism center. (To be published.)
3. Cecil, R. L.: Environmental factors in the etiology of rheumatic conditions, *M. Clin. North America*, 29:566-570 (May), 1945.
4. Copeman, W. S. C.: Treatment of the rheumatic diseases in the field, *Brit. J. Phys. Med.*, 5:161-165 (Nov.-Dec.), 1942.
5. Finney, J. O., Boland, E. W., and Hench, P. S.: Predisposing and precipitating factors in rheumatoid arthritis: Based on a study of 100 soldiers. (In publication.)
6. Flind, J., and Barber, H. S.: The psychogenic basis of some so-called rheumatic pains, *Quart. J. Med.*, 54:57-74 (April), 1945.
7. Halliday, J. L.: Psychosomatic medicine and the rheumatism problem, *Practitioner*, 152:6-15 (Jan.), 1944.
8. Halliday, J. L.: The concept of psychosomatic rheumatism, *Ann. Int. Med.*, 15:666-677 (Oct.), 1941.
9. Halliday, J. L.: Concept of psychosomatic affection, *Lancet*, 2:692-696 (Dec. 4), 1943.
10. Hench, P. S.: A clinic on psychogenic rheumatism, presented at the Interstate Post-Graduate Medical Assembly (Cleveland, Oct. 15-18, 1946). (In publication.)
11. Hench, P. S., and Boland, E. W.: The management of chronic arthritis and other rheumatic diseases among soldiers of the United States Army, *Ann. Int. Med.*, 24:808-825 (May), 1946.
12. Patterson, R. M.: Craig, J. B., Waggoner, R. W., and Freyberg, Richard: Studies of the relationship between emotional factors and rheumatoid arthritis, *Am. J. Psychiatry*, 6:775-780 (May), 1943.
13. Short, C. L.: Arthritis in the Mediterranean theater of operations, I. Incidence of joint disease—clinical description of rheumatoid arthritis, *New Eng. J. Med.*, 236:383-391 (Mar. 13), 1947.
14. Weiss, Edward: Psychogenic rheumatism, *Ann. Int. Med.* (In publication.)

## The Section on General Practice

### Its Problems, Its Goals, Its Responsibilities

E. A. ROYSTON, M.D., *Los Angeles*

THE California Medical Association, like most things Californian, has always been noted for its broadmindedness and for its optimistic long-range view on matters of consequence.

The 76th annual session of the Association is another one of the bright spots in our record, and one which the historian of the future will mark with a red pencil; for we of the General Practice group are assembled here today for the first time in the history of the California Medical Association as a recognized and an organized Section on General Practice. Today, for the first time in the history of the California Medical Association, the men and the women engaged in the general practice of medicine can meet at a state convention with those of like status in a section of our own where we can discuss problems in which we are interested in a manner suitable to ourselves.

A Section on General Practice was authorized in the Los Angeles County Medical Association in late 1945. About the same time, members of the Alameda County Medical Association also formed a Section on General Practice. Strange indeed that the movement should have started in the north and in the south at about the same time, each group bringing its plans to fruition without the knowledge of the other, and each group thinking it was fighting a lone and an unpopular battle.

I will never forget how happy the president of the northern group and the president of the southern group were when they met in this hotel at the state meeting last May, and each found that instead of having to be a lone crusader on the general practice question, he was joined by his counterpart from the opposite end of the state with a complete organization. Consequently it was much easier for us to go to the House of Delegates and to the Reference Committee with our problem. As you now know, the House of Delegates voted unanimously that we should have a section of our own.

We have all been asked: Why a Section on General Practice? Why can't you men get all you want by going to the General Surgery Section or to the Obstetrics and Gynecology Section, or the Internal Medicine Section or the Pediatrics Section? Every last one of you in front of me can answer that question without giving it a second thought. Our work demands a broad and a comprehensive view of the medical field. You all know that we jump from otitis media to endocervicitis, to cholecystitis, to prenatal care, to Colles' fracture or the "itch" or what

have you just as fast as we can walk down the hall of our office, from one examining room to the next.

Ours is not the monotony of the man who confines his work to the left nostril or the right kidney. We must, of necessity, have a working knowledge of the whole field. We must be diagnosticians. We must be able to give the patient relief or he and his family will leave us and go on down the street to some doctor who can. But there is another reason why we must have a Section on General Practice and that is: In administrative medicine the outlook, the ideals and the goals of the man doing general practice are very different from those of the man in a specialty group, and must of necessity be handled in a different manner.

What are some of our problems?

By and large all the specialty groups are very much in sympathy with the general practice group. Most of them can remember only too well the days when they made night calls and did the routine spade work of the practice of medicine.

The general practice group must recognize as one of its responsibilities its duty to keep in constant and close touch with all the other sections. The members of the other sections in this way will be kept constantly aware of our changing needs. We must find out why we so frequently do not have our proportional representation in all organized medical activities. We must find out why our members of the general practice group do not attend the county medical association meetings and are not better acquainted with the current problems of the day, whether they be problems of administration and policy, or just run-of-the-mill work. For too many years the man doing general practice has been too willing to let the specialty men do too much of the work of the county society. If the general practitioner wants privilege, he must be willing to do more of the work than he has been doing in the past.

This also applies to county hospital clinics. Many of the best specialists of the country today have become efficient because of the long hours they have been willing to spend in the county hospital clinics and in other charity clinics. I hear many general practice men saying they do too much charity work in their office already, so why should they waste their time in county hospital clinics. We must remember that the best clinicians are those who are constantly seeing new problem cases and learning new angles of approach to the old ones. For many years men doing general practice were shut out of many of the charity clinics because the administrators thought that only specialists should see the patients there. That day is rapidly passing. More opportunity is being offered

Presented before the sections on General Practice and Anesthesiology at the 76th Annual Session of the California Medical Association in Los Angeles, April 30-May 3, 1947.

the general practitioner in the clinics today, and he should avail himself of this way of broadening his knowledge.

The general practice man feels that he is not getting his share of the available beds in the private hospitals. We all know how acute this shortage of hospital beds is, and we feel hurt and slighted every time we call a hospital and find we cannot have a bed immediately. The next time we can't get a bed, before we start to grumble, let us ask ourselves: How am I relating myself to my hospital? Am I on speaking terms with the superintendent? Have I done anything to help in the hospital administration problems? Was I really too busy to teach that class of nurses when I was asked? Am I doing first class work in this hospital? Do I keep my records up to date without having to be prodded by the record librarian? If we can really clear ourselves in a simple questionnaire such as this but still can't get our share of the beds, then perhaps we do have cause to feel that we are being discriminated against.

Every one of us, in his spare time, has been caught tinkering on his car or doing an odd job of painting or carpenter work around the house and had someone kid him by asking for a union card. We know that the unions do not allow a carpenter to fix a leaky faucet or a painter to adjust the woodwork before he paints it. We have even laughed about it and said how ridiculous the unions are to be so strict and narrow-minded.

Have you ever thought how ridiculous the practice of medicine might become in almost the same way? The gynecologist may do a hysterectomy or a salpingectomy or an oophorectomy, but he must not *per se* do an appendectomy no matter how close the tip of the appendix may be to the fimbriated end of the right tube. That is: the gynecologist must not do an appendectomy *per se* if he is abiding strictly by the rules of his specialty. The gynecologist certainly won't dare do an appendectomy *per se* if the abdominal surgeon on the staff of his hospital happens to be in the operating room and is unfriendly.

The only man who can "play the whole orchestra" in the practice of medicine is the man who belongs to our group—the man who has a license from the state to take care of the sick, and who has not joined any of the specialty boards. I am not going to elaborate on this thought any more. I am going to leave it by asking just one question: Can we today, in any of the major metropolitan hospitals, practice medicine as the state has licensed us to do? In the metropolitan hospitals there is only a handful of men doing general practice who are allowed to do surgical operations.

#### WHAT ARE OUR DUTIES AS A GROUP?

The general practice group is still in its very infancy, but we are already talking loudly about what we would like to see changed to help our status in the hospitals and in administrative medicine in general.

Before we concern ourselves with these questions I would like to draw your attention to some of our

duties and obligations. First: A man should be a thoroughly good doctor, whatever group he belongs to. A man belonging to the general practice group should take particular pains to see that he is as nearly correct in his answers as possible. He should not excuse himself by saying "I am only doing general practice." It is much better when in doubt to call for consultation than to jeopardize the patient and one's own status by giving questionable treatment. The minimum duty of a general practitioner is to attend faithfully his hospital staff meetings. He is sure to learn something scientific each time, and further, it brings him in contact with his fellow staff members.

As far as it is possible, he should attend his county medical association general meetings, but particularly he should attend his section meetings of the county medical association. Again, every doctor owes it to himself to leave his office occasionally. Patients are proud of their doctor because he took time to go to the state medical meeting and to the national meeting. They talk very freely about their doctor being up to date and progressive and knowing the very latest. They contrast him very freely with Dr. Joe Doakes down the street who has not been out of town for the past 15 years and is so far behind the times that he thinks penicillin is the name of one of Mussolini's girl friends.

Besides attending these sundry meetings at which the busy general practitioner can relax, he should also never forget that his days of study and learning are never over. The medical schools are again all giving excellent postgraduate courses. Don't let any man think he can be a success in his office or in his hospital if he does not take a few weeks occasionally to bring himself up to date on the work he most enjoys.

The man doing general practice is largely looked up to in his community as a leader. He should not try to shirk such responsibility. He should keep reasonably abreast of local and other politics. Of course it is not good for a doctor to get deeply involved in politics, but he should be able to give good advice at all times. He should keep abreast of all civic matters, particularly where medical questions are concerned. He should be prepared to address local organizations on current matters without being naive. He should make it his business to be acquainted with at least some of his city and county officials so that he can use his influence at the proper time.

The man doing general practice should be most particular about his relations with his fellow doctors. He should never be caught talking about their work in a disparaging manner. He should never even raise his eyebrows or let out a whistle when he hears from his patients how Dr. Brown treated Mrs. Smith for such and such a condition.

#### WHAT ARE OUR GOALS?

Having squared ourselves briefly on our duties, and having glanced at our problems and our gripes, may we ask ourselves now, what are our goals?

1. The first and primary concern of the Section on

General Practice must be to see to it that each and every one of its members is top flight, not only as a citizen in general, but particularly as a doctor of medicine. We who are trying to regain lost privilege and prestige must be sure we do not live in glass houses which our brethren can destroy with stones.

2. A Section on General Practice in each county society of the state.

3. Proper representation of the General Practice Section on the council of each county medical association.

4. A Section on General Practice in every hospital.

5. Equal number of beds per capita in every hospital for the general practitioner and the specialty groups.

6. That every man doing general practice be allowed free access to every department of the hospital, providing of course that in each individual case he does not attempt to exceed his ability, and that he pledges himself to call for consultation as soon as he feels himself approaching the thin ice, rather than waiting until he is already in deep water.

7. That the man doing general practice should try to make himself more friendly and agreeable and affable than ever in the past, and that he should be the first to extend the hand and make the approach in the desired reforms rather than waiting and hoping that some friend in some specialty group will bring about the reforms for him.

8. That the medical schools throughout the country be approached on the idea of establishing a Department of General Practice and that the American specialty boards and the American colleges be encouraged to insist that their candidates not only spend adequate time in the Department of General Practice, but also that they spend at least three years in general practice as a prerequisite to their certification so that they can become acquainted with the humanitarian side of the practice of medicine as well as the technical side. The Medical School of the University of Colorado is already taking steps in this direction.

Time will not permit going into detail on other goals, but these are the outstanding items, and if they are attained within the reasonable future, the man doing general practice will find himself on a new plane, possessed of new courage and ambition, and will find his daily work more satisfactory than ever before.

#### ACCOMPLISHMENTS

What have we, as a group, been able to accomplish to date? In the words of the late Al Smith, "Let's take a look at the record." It must be remembered that we are still in our swaddling clothes and we are travelling a rough and an uncharted course. The officers of the section, whether they be local, state or national are all hardworking men. They have spent countless hours in perfecting constitutions and by-laws. They have carried on a voluminous correspondence with every interested party which would give them time and attention.

The Section on General Practice is not a local or a state idea only. In 1945 a section was authorized

in the American Medical Association on somewhat of a trial basis, and it was given permanent status at the San Francisco meeting in July, 1946. Dr. Paul Davis of Akron, Ohio, was elected chairman. A vice-chairman was selected from California, and Dr. W. B. Harm of Detroit, Michigan, was elected secretary.

In California, besides our state section, we have county sections in San Francisco, Alameda, San Mateo, Yuba-Sutter, Los Angeles, San Diego and Santa Barbara; and other county sections both in the north and in the south are in the organizing process.

It is very remarkable how many friends we have among the men in high places. Dr. Henry Luce of Detroit, himself not a general practitioner, was more responsible than any other one man for our getting a section in the American Medical Association. Dr. Vincent Askey of Los Angeles, a Fellow of the American College of Surgeons, championed our cause at the meeting of the House of Delegates of the American Medical Association in Chicago in January, 1947, and was successful in getting a resolution passed which called for better status for the general practitioner in every recognized hospital in the United States. I, personally, and as an officer of the section have had much encouragement for our cause from no less a man than Dr. Malcolm MacEachern of the American College of Surgeons. Dr. Wingate Johnson, head of the Department of Medicine of Wake Forest College, North Carolina, and Dr. Howard West, medical director of the Los Angeles County General Hospital, have given us freely of their time and advice. There are numerous other men of influence who have given a great deal of thought to the status of the man doing general practice. It has been urged that we establish an American Board of General Practice.

We must now realize that we, the Section on General Practice, are more a part of American medicine than ever before. We are an organized and a recognized section. Of the 160,000 doctors of medicine in the American Medical Association, about 30,000 belong to the specialty boards or to the colleges. About another 25,000 are qualified for these certificates but will not go after them for various reasons. This leaves about 105,000 men who do general practice in the truer sense. It is to this group of men that your officers say: Join your organized section and follow your group leaders. Always, in all your efforts, be pro-general practice, and remember you do our cause no good by being anti-specialist. We are all fighting the battle against socialized medicine, and if we do not hang together we will surely, in the words of Benjamin Franklin, hang separately.

If you forget everything else that has been said in this address, take this one thought home with you and conduct yourself accordingly: The General Practice Group is probably the last bulwark between medicine as we know it today, and the phantom of socialized medicine which is dancing on our horizon, for in this group is the beloved family doctor so dear to the heart of Mr. and Mrs. America.

8726 S. Vermont Avenue.

# Diverticulosis and Diverticulitis of the Colon

## A Study of 100 Cases

ROBERT W. QUINN, M.D., *New Haven, Connecticut*

IN the past 25 years diverticulosis of the colon has been recognized much more frequently due to the increasing use of opaque media in x-ray examination of the bowel. As the literature on the subject is becoming relatively extensive, it is well to review current knowledge and to present further clinical data.

### DEFINITION

The term "diverticulum" comes from the Latin diverticulum, meaning a bypath. When multiple diverticula of the colon are present, the condition is known as diverticulosis. Inflammation of a diverticulum is termed diverticulitis.

### CLASSIFICATION

A simple classification of diverticula has been offered by Edwards<sup>2</sup>:

1. Congenital diverticula.
  - (1) Meckelian.
  - (2) Non-Meckelian.
2. Acquired diverticula.
  - (1) Primary—Hernial protrusions of the mucous and submucous coats through a gap in the muscular coat.
  - (2) Secondary.
    - a. Associated with disease of the neighboring intestinal wall.
    - b. Traction diverticula.
    - c. Pseudo-diverticula.

### INCIDENCE

A study of 7,000 consecutive autopsies by Kocour<sup>4</sup> at the Cook County Hospital discloses that diverticulosis was shown in 3.58 per cent of the cases in which the patients had been over 40 years of age. Four hundred patients with diverticula of the colon were seen at the Mayo Clinic from January 1, 1938, to June 30, 1939.<sup>3</sup> During 1941-42 at the Faulkner Hospital in Boston, barium enemas were given to aid in the diagnosis of abdominal symptoms in 423 cases. Diverticulosis of the colon was found in 154 (36 per cent).<sup>7</sup> During a period of more than 13 years (1925-38) 2,139 examinations of the colon, using barium enemas, were made at Kings College Hospital, London.<sup>2</sup> In 254 of them (11.87 per cent) diverticula were found. Miller<sup>6</sup> reviewed 100 routine cases in which barium enemas had been administered at the University of California Hospital and found diverticula in 15 of them. A different view of the frequency can be gathered from the fact that among 100 routine autopsies done at the University of Cali-

fornia Hospital in the two-year period 1939-1940 on the bodies of patients who had been 35 years of age or older, diverticulosis of the colon was observed in eight cases. It must be remembered that estimates of the incidence based on x-ray studies probably will be inaccurate because a group of patients on whom such studies were carried out probably would contain many studied primarily because of bowel ailments.

The incidence of diverticulitis is much lower. In 177,718 admissions to the New York Hospital, 1933-1944, there were only 201 cases of diverticulitis, a per cent of 0.001 of all admissions.

### AGE INCIDENCE

Diverticula of the colon are rarely found in patients below the age of 35. Of 2,139 patients given barium enemas at Kings College Hospital, London, 516 were below the age of 35 and in only three of these were diverticula found, the youngest of the three being 28 years of age.<sup>2</sup> In the present study the ages of the patients ranged from 33 to 82 years and the majority were in the fourth, fifth, and sixth decades.

### PATHOGENESIS

Diverticulosis of the colon is rarely congenital. Edwards postulates that "in every hernia two conditions must be present: (1) an area of diminished resistance in the wall of the cavity—this area of weakness through which herniation occurs is provided by the passage of a blood vessel; (2) a pulsion force in the lumen of the cavity—(a) the pressure of the contents, (b) contraction of the muscular coat." The latter factors are interdependent. It is contended that diverticula result from irregular spasm of the bowel musculature maintained over a long period of time, and that hernial orifices, through which the mucous membrane is forced, are provided by the gaps in the musculature through which the blood vessels pass. Constipation apparently does not play a role in the pathogenesis unless spasm of the bowel is also present.<sup>2</sup> There are many references in the literature concerning possible predisposing factors such as overdistention of the bowel, hard coarse fecal material, degenerative changes, and obesity, but the significance of most of these factors is pure conjecture.

### ETIOLOGY

The exact cause of diverticulosis of the colon is not known. The pathogenesis has been discussed, but the etiology must await further studies of bowel physiology and factors which cause prolonged bowel spasm. At present it appears that long continued

\* This study was made while the author was the Lillie Spreckels Wegeforth Fellow in Medicine, University of California Medical School, 1941.

spasm of the bowel is an important factor in the cause of diverticulosis of the colon.

#### CLINICAL MANIFESTATIONS

Uncomplicated diverticulosis of the colon is asymptomatic. Not until diverticulitis or other complications occur are symptoms noticed. In the group of cases under consideration in this study, 68 of the patients were females and 32 males. In 71 cases diverticulosis alone was present, and in 29 there was also diverticulitis. The criteria for judging the presence of diverticulitis are difficult to establish. In the present study, physical signs of thickening of the colon and tenderness of the colon, tenderness in the left lower abdomen, and positive roentgenologic findings were used in determining the presence or absence of diverticulitis. Undoubtedly diverticulitis was not recognized in some cases where it was present, while in others it was suspected but not present. In 16 cases an impression of diverticulitis of the colon was gained clinically and was established by roentgenographic studies or operation. The diagnosis in the remaining 84 cases was established by other methods. (Table 1.)

TABLE 1.—Means of Diagnosis of 100 Cases of Diverticula of the Colon at the University of California Hospital

	No. of Cases
Suspected clinically .....	16
Not suspected clinically.....	84
Diagnosis established by:	
Autopsy .....	9
Barium enema (roentgen ray studies).....	66
Surgical operations .....	6
Gastrointestinal series (roentgen ray studies).....	9
Gastrointestinal series and barium enema (roentgen ray studies) .....	10
Total .....	100

Symptoms and signs (Table 2) were variable and appeared in many combinations. Pain in the lower abdomen was usually colic-like but sometimes steady. Weight loss was a rather common finding and in many instances led the clinician to suspect carcinoma of the large bowel. Diarrhea and constipation were present intermittently in 15 cases. Blood in the stool was a common finding—present in 26 of the 29 cases of diverticulitis. Young and Young noted blood in the stool in 26 per cent of 84 cases of diverticulitis of the colon.<sup>7</sup>

It is noteworthy that the sigmoidoscopic examinations performed in 22 cases disclosed abnormal findings in only two; in one, obstruction of the sigmoid colon, and in the other, injection of the mucosa. In expert hands, however, sigmoidoscopy is apparently a much more accurate diagnostic aid. Jackman and Pumphrey<sup>3</sup> reported on 400 patients with diverticula of the colon. In 242 cases both sigmoidoscopic and roentgenographic studies of the colon were done. A sufficient variation from the normal was observed on proctoscopic examination to suggest the presence of diverticula of the sigmoid in 160 or 66.1 per cent.

TABLE 2.—Symptoms and Signs Observed in 100 Cases of Diverticula of the Colon at the University of California Hospital

	No. of Cases
Constipation .....	36
Pain and tenderness, left lower quadrant.....	30
Blood in stools.....	26
Diarrhea .....	21
Intermittent diarrhea and constipation.....	15
Weight loss .....	11
Mucus in stool.....	9
Mass, left lower quadrant.....	4
Mass, right lower quadrant.....	1
Mass, rectum .....	1
Mass, adnexa .....	1
Fever .....	1

TABLE 3.—Location of Diverticula in 100 Cases at the University of California Hospital

	No. of Cases
Sigmoid .....	45
Sigmoid and descending colon.....	16
Entire colon .....	16
Descending colon .....	14
Sigmoid and ascending colon.....	3
Undetermined .....	3
Transverse colon .....	2
Ascending colon .....	1

Roentgenographic studies later revealed diverticula. In the opinion of these authors the most valuable single proctoscopic finding, aside from actually seeing the diverticula, is the presence of sacculations.

There is no doubt that roentgenographic study of the colon, by means of the barium enema, is the most efficient method for demonstrating diverticula of the colon.

Diverticula are practically always multiple and are most numerous in the sigmoid colon.<sup>4</sup> They become less numerous toward the cecum. The rectum is not often involved. The location of the diverticula in the 100 cases under consideration is described in Table 3. In these cases diverticula were present in other parts of the bowel. In one of these a duodenal diverticulum was present; in a second case a diverticulum of the stomach, a diverticulum of the duodenum, at least three diverticula of the terminal ileum, as well as numerous diverticula of the entire colon were present; and in a third case, multiple diverticula of the colon and esophagus were found.

#### COMPLICATIONS

The most important complications of diverticulitis are obstruction, acute perforation, abscess formation, rupture of an abscess with subsequent localized or generalized peritonitis, and adhesions and strictures of segments of the colon. The complications which occurred in this group of cases are listed in Table 4. Diverticulosis or diverticulitis apparently do not predispose to cancer. In Kocour's study of 7,000 autopsies, the incidence of cancer of the colon was not greater in the group with diverticula of the colon than in the entire group studied. Carcinoma of the colon was a coincidental finding in two of the 100 cases in the present study.

TABLE 4.—Complications in 100 Cases of Diverticula of the Colon at the University of California Hospital

	No. of Cases
Partial obstruction of large bowel.....	6
Sigmoid adhesions .....	2
Rectal stricture .....	1
Volvulus of sigmoid.....	1
Pelvic abscess .....	1

## PATHOLOGY

The diverticula are composed of a herniation of the mucus membrane and submucosa through a gap in the musculature of the bowel wall. The musculature of the bowel is continued into the wall of the diverticulum but becomes progressively thinner and atrophic toward the fundus of the sac.<sup>1,2</sup> There is no evidence that generalized atrophy of the musculature of the bowel occurs.<sup>2</sup>

## TREATMENT

It is not the purpose of this paper to discuss extensively the treatment of diverticulosis and diverticulitis of the colon. The aim in the management of patients with diverticulosis is to prevent diverticulitis and other complications. Supposed factors which may predispose to diverticulitis were mentioned earlier, but there is no good reason to believe that avoidance of these faults would really prevent diverticulitis. In the interest of general health, however, it seems reasonable to attempt the cultivation of regular bowel habits. The treatment of diverticulitis requires bed rest. A low residue diet seems reasonable. Local heat to the abdominal wall and heat in the form of warm enemas may relieve pain. Tincture of belladonna or phenobarbital or both should be given in full therapeutic doses in an effort to relieve spasm. Use of repeated small instillations of barium (30 gm. in 90 cc. warm water) followed by a cleansing enema has been reported to give good results.<sup>7</sup> Barium by mouth in similar doses also has been reported to give good results.

The indications for surgery are few and largely limited to the treatment of complications. These are in general: (1) acute perforation with spreading peritonitis, (2) inability to differentiate between

cancer and diverticulitis, (3) fistula formation, and (4) chronic obstruction. Whether or not to operate on a patient with acute non-perforating diverticulitis is a most difficult decision to make. Surgical treatment carries with it a high mortality. In one report surgical procedures were carried out in 21 patients with acute diverticulitis, with a mortality of 19 per cent.<sup>7</sup> In another study 51 cases required operation. Nine deaths occurred giving a mortality of 17.6 per cent.<sup>5</sup> The merits of medical versus surgical treatment of acute diverticulitis must await further clinical studies.

## SUMMARY

1. A brief outline of the subject of diverticulosis and diverticulitis of the colon has been given.
2. The findings in 71 cases of diverticulosis of the colon and 29 cases of diverticulitis have been presented.
3. Constipation was present in 36 cases.
4. Pain and tenderness in the left lower quadrant of the abdomen, blood in the stools, diarrhea, and intermittent diarrhea and constipation were the most constant clinical features of those patients with diverticulitis.
5. Diverticula are located most frequently in the sigmoid colon.
6. Partial obstruction of the large bowel was the most common complication in this group of cases.

333 Cedar Street, New Haven, Connecticut.

## REFERENCES

1. Delafield, F., and Prudden, T. M., revised by Wood, F. C.: A textbook of pathology. 16th edition. William Wood and Company, New York City.
2. Edwards, H. C.: Diverticula and diverticulitis of the intestine, John Wright and Sons, Ltd., Bristol, 1939.
3. Jackman, R. J. and Pumphrey, R. E.: The significance of proctoscopic findings in the diagnosis of diverticula of the colon, *Proc. Mayo Clinic*, 14:596 (Sept. 20), 1939.
4. Kocour, E. J.: Diverticulosis of the colon, *Am. J. of Surg.*, 37:433 (Sept.), 1937.
5. Martin, K. A. and Adsit, C. G.: Diverticulosis and diverticulitis, *Med. Clin. of North Am.*, 639, New York number, 1945.
6. Miller, E. R.: Personal communication.
7. Young, E. L. and Young, E. L. III: Diverticulitis of the colon, *New Eng. J. of Med.*, 230:233 (Jan. 13), 1944.



## Surgical Treatment of the Horseshoe Kidney

FRANKLIN FARMAN, M.D., *Whittier*

**S**URGICAL treatment of the horseshoe (fused) kidney embraces a wide field of renal operations and for that reason is of great interest and importance. The development of this treatment can be divided into three periods, the first beginning with the recorded autopsy findings of De Carpi, Morgagni, and Rayer in the 15th and 18th centuries, the second beginning in the late 19th Century with the accidental discovery of the anomaly during exploratory abdominal surgery (no attempt being made to correct the condition), and the third period being ushered in by such men as Rovsing, Newman, Israel, Braun, and others who successfully performed nephrolithotomy, pyelolithotomy, and heminephrectomy. The conservative operation of symphysiotomy and nephropexy for "horseshoe kidney disease" may be said to be a development of the 20th Century following the introduction of cystoscopy, urography, and renal functional tests which have made pre-operative diagnosis and surgical management more accurate and successful.

Surgical advances in the cure of horseshoe kidney have kept pace with improved diagnoses until today the "fused kidney patient" can be offered a life span almost equal to that of persons having two normal kidneys. The latter statement would be true especially if correction of the anomaly could be undertaken before infection, calculi, and associated diseases have developed. Early correct diagnosis in children and young adults is the way to improve our end results. After infection has been superimposed upon the anomalous fused kidney, urinary stasis, chronic pyelonephritis, and recurring calculi are exceedingly difficult to eradicate, even with modern surgery and the so-called "miracle drugs."

### SURGICAL APPROACH

The extraperitoneal oblique lumbo-abdominal approach to operations upon the fused kidney is advocated by most modern writers. However, the transperitoneal incision has been used by some urologists, and by quite a number of general surgeons in the course of abdominal exploration for unexplained masses. Familiarity with both types of wide exposure is necessary to successful correction of these anomalies and their concomitant diseases.

In view of the fact that verification of the diagnosis of horseshoe kidney can be made only by actual visualization of the isthmus (palpation alone of a fibrous or parenchymatous bridge is not reliable), the classical oblique lumbo-abdominal incision must be extended downward and inward in order to expose the retroperitoneal structures at the level of the third and fourth lumbar vertebrae, the usual site of a horseshoe isthmus connecting the lower poles. This

was surprisingly easy in the two cases in which the author has done the operation. The left oblique approach is strongly recommended if there is a choice as to side in symphysiotomy, because there is less danger of injury to the thick abdominal aorta on the left side than to the vena cava on the right. Walters and Priestley<sup>17</sup> have called attention to the possibility of fused kidney if difficulty in freeing either renal pole is encountered during the course of any surgical procedure upon the kidney.

### DIVISION OF THE HORSESHOE ISTHMUS

Symphysiotomy of the fused isthmus may be said to be the principal operative procedure for the cure of "horseshoe kidney disease," which in the opinion of Gutierrez<sup>7</sup> constitutes a typical syndrome. This triad consists of (1) urinary symptoms, (2) indefinite abdominal pain, and (3) gastrointestinal disturbances (most frequently constipation), and will appear in all clinical cases to a greater or lesser degree, unless overshadowed by an associated pathological lesion of one or both halves of the fused kidney, such as pyelonephritis, pyonephrosis, calculus or tumor, rarely tuberculosis. Division of the isthmus, partial resection of the kidney, or total heminephrectomy can be accomplished by various methods or techniques. Essentially they are the same—sharp dissection of the parenchymatous stump and closure of the raw surface to insure complete hemostasis and prevent fistulous formation. The classical V-shaped incision may be used, a pad of fat placed within the wedge, and closure effected with mattress or overlapping sutures of plain, chromic or ribbon catgut. In our experience, the use of chromic No. 1 catgut placed through healthy parenchymatous or capsular tissue and tied snugly but not tightly over pads of fatty and fibrous tissue has proved successful in controlling hemostasis and insuring healing without fistulae. The sacrifice of some healthy parenchymatous tissue at the site of resection or division may be necessary to effect rapid closure and control hemorrhage. Prolonged operative procedures in the patient with "horseshoe kidney disease" carry the real hazard of shock and postoperative anuria due to the high incidence of "nephritis."

Foley<sup>6</sup> in 1945 summarized the results of symphysiotomy in 26 cases, seven of which were his own. The mortality was 3.5 per cent, and good results were recorded in 24 patients. He says that "the symptoms caused by the anomaly horseshoe kidney can be relieved and normal anatomic relations restored by division of the renal isthmus, and nephropexy on one or both sides." At the Mayo Clinic<sup>17</sup> only one of 50 patients had divisions of the isthmus per se, and in Nation's<sup>12</sup> report from the Los Angeles General Hospital, three of nine patients had symphysiotomy, and in one this was followed later by nephrectomy. Eisendrath and his co-workers

Chairman's address read before the Section on Urology at the 76th Annual Session of the California Medical Association, Los Angeles, April 30-May 3, 1947.

found 13 instances of symphysiotomy in 152 patients studied (quoted from Hinman<sup>10</sup>). Division of the isthmus and partial resection of the kidney with nephropexy was carried out in one of the author's own cases, and in the other symphysiotomy was deemed inadvisable because of the bound down position of the kidney and aberrant blood supply. In the case first mentioned, pain in the left kidney area and a feeling of tightness or "pulling" when lying on the right side was relieved completely by resection of the isthmus and left nephropexy. In the latter case, in which symphysiotomy was not done, the patient is free from pain and outwardly well except for chronic pyuria. In general following symphysiotomy with or without nephropexy, the two halves of the horseshoe kidney swing away from the vertebral column to assume a more normal position, and in the experience of most authors the operative procedure has been of great value in the relief of true "horseshoe kidney disease."

#### NEPHROPEXY

One of the characteristics of fused (horseshoe) kidney is the low position it generally occupies and the complexity of make-up of the renal pedicle (Anson<sup>1</sup>). Four to six sets of vessels are not uncommon, deriving from the aorta, vena cava, iliac, and other blood supply. After division of the isthmus, an adequate blood supply to the separated half must be insured, and often a high nephropexy is out of order. The principal point in fixation of the kidney is to insure proper drainage from the renal pelvis, which in a large percentage of horseshoe kidneys lies anterior. Any type of anchor suture, transfixed to the intercostal, abdominal or lumbospinal muscles, may be used. Gutierrez<sup>8</sup> in addition recommends decapsulation of the upper pole. Drainage is necessary because of the danger of fistulae from the stump of the isthmus. Excellent results have been reported by Foley,<sup>6</sup> Gutierrez,<sup>8</sup> Culp,<sup>3</sup> and others, following symphysiotomy and nephropexy in a gradually increasing number of reported cases (about 25). One must remember that not more than a total of 350 cases of horseshoe kidney have been reported in the world's literature to date, yet its incidence by autopsy record is one in 600 people.

#### PYEOLITHOTOMY IN HORSESHOE KIDNEY

Lithiasis is by far the most common concomitant lesion of horseshoe kidney, running as high as one-third in the Rathbun<sup>15</sup> series, and over one-half in the Walters-Priestley<sup>17</sup> report. However, Sangree and co-workers<sup>16</sup> found only 12 per cent by autopsy. "The conditions that favor calculi deposition, namely pelvic dilatation, urinary stasis, and some degree of nephritis or pyelitis, are more frequently evident within the anomalous fused than in the normally formed organ" (Farman<sup>5</sup>).

Pelviolithotomy is the operation of choice for the removal of such calculi and in most instances it can be readily performed because of the usual accessible anterior position of the renal pelvis in fused kidney. The only drawback to simple pyelotomy is the fre-

quent multiplicity of stones, their wedge-shaped arrangement (Sangree<sup>16</sup>) and tendency to stag-horn formation, making delivery impossible except through additional nephrotomy incision. In one of the author's cases, bilateral pelviolithotomy (not simultaneous) with nephrostomy drainage was done; in the other, nephrolithotomy without nephrostomy drainage. Recovery in the latter case was more rapid and satisfactory than in the former. This brings up the question of drainage in kidney surgery. Deming<sup>4</sup> has said that, ideally speaking, a kidney already damaged by obstruction should have surgical correction without drainage. Patch<sup>13</sup> and Quinby<sup>14</sup> have already recommended such procedures. The author himself believes that the value of nephrostomy drainage in much kidney surgery should be questioned.

#### HEMINEPHRECTOMY

Heminephrectomy may be said to be the operation of last resort in horseshoe (fused) kidney. Surprisingly, it ranks high in the total number (almost 50 per cent) of cases reported, an indication of late diagnosis with the development of a destructive lesion, or of too radical an attitude on the part of the operating surgeon. Today proper preliminary study will eliminate the necessity for nephrectomy in many cases, with consequent conservation of renal tissue. A good many heminephrectomies have been done transperitoneally by general surgeons in the course of exploratory laparotomy for abdominal masses. There are some technical advantages to the transperitoneal route, although most urological surgeons prefer the oblique lumbo-abdominal extraperitoneal approach because it provides good exposure and eliminates danger of peritonitis.

The difference between nephrectomy of the non-fused and the fused kidney is the necessity in the latter case for treatment of the horseshoe isthmus and ligation of the complex renal pedicle, plus the danger of injury to the great vessels or second ureter. Occasionally the opposite ureter curves across the vertebral column as it did in one of the author's own cases, and in rare instances there will be only one ureter (Sangree's<sup>16</sup> series showed a single ureter in four of 25 cases in which autopsy was done). In heminephrectomy, division of the isthmus usually is done first, the stump carefully sutured and anomalous vessels tied, after which delivery of the kidney and ligation of the true renal pedicle may be relatively easy, as the arrangement of the deep vessels is surprisingly simple according to the dissections of Anson.<sup>1</sup> Drainage and careful wound closure of course is necessary, as in most of these cases infection is present, and the tendency to sinus formation has been reported. Persistent urinary fistulae are uncommon however, as the resected stump tends to atrophy. Hess<sup>9</sup> reported one case in which the connecting bridge was severed with a cautery and left without suture, no urinary fistula following. The mortality rate in isolated case reports runs high—in Rathbun's<sup>15</sup> collected series, 15 per cent in 52 cases of heminephrectomy. Heminephrectomy should

be undertaken only for obstructive calculus pyonephrosis, tumor, or other lesion incompatible with life and health.

#### PYELOPLASTY IN HORSESHOE KIDNEY

Ideally speaking, repair of the hydronephrotic pelvis often found in fused kidney should be the operation of choice to restore normal drainage and prevent infection and recurrent calculosis. The frequent high insertion of the ureter in an anterior position lends itself to re-implantation to a more normal posterior position at a lower level and, according to Atherton,<sup>2</sup> should be tried in suitable cases. To the author's knowledge there are no reports of results of this operation except one by McGinn and Wickham.<sup>11</sup> In this case the upper right ureter was injured during transperitoneal heminephrectomy for a Wilm's tumor in a child two years old. Six days later the ureter was re-implanted into the right pelvis and nephrostomy performed. Death occurred two months later from uremia and overwhelming pyelonephritis due to stasis, but in the interim the patient presented a normal health status.

285 North Greenleaf.

#### REFERENCES

1. Anson, B. J., Peck, J. W., and Cauldwell, E. W.: The anatomy of commoner renal anomalies: ectopia and horseshoe kidneys, *J. Urol.*, 47:112 (Feb.), 1942.
2. Atherton, L.: Horseshoe kidney and its clinical management, *The South. Surgeon (British)*, 11:173 (March), 1942.
3. Culp, O. S.: Treatment of horseshoe kidney, *Ann. Surg.*, 119:777 (May), 1944.
4. Deming, C. L.: Modern conception of drainage and irrigation of the urinary tract, *J. Urol.*, 57:49, 1947.
5. Farman, F.: Bilateral nephrolithiasis in horseshoe kidney, *J. Urol.*, 51:447 (May), 1944.
6. Foley, F.: Surgical correction of horseshoe kidney, *J.A.M.A.*, 115:1945 (Dec. 7), 1940.
7. Gutierrez, R.: The clinical management of horseshoe kidney, New York, Paul B. Hoeber, Inc., 1934.
8. Gutierrez, R.: Operative technique for division of renal isthmus in horseshoe kidney, *Am. J. Surg.*, 55:28 (Jan.), 1942.
9. Hess, Elmer: Surgical horseshoe kidney, report of an unusual case, *J. Urol.*, 12:627 (Dec.), 1924.
10. Hinman, F.: The principles and practice of urology, Philadelphia, W. B. Saunders Co., 1935.
11. McGinn, E. J., and Wickham, J. A.: Wilm's tumor in a horseshoe kidney, *J. Urol.*, 56:520 (Nov.), 1946.
12. Nation, E. F.: Horseshoe kidney, a study of thirty-two autopsy and nine surgical cases, *J. Urol.*, 53:762 (June), 1945.
13. Patch, F. S., and Coduere, J. T.: Treatment of hydronephrosis secondary to aberrant renal vessels, *Canad. M. A. J.*, 45:495 (Dec.), 1941.
15. Rathbun, N. P.: Notes on the clinical aspects of horseshoe kidney, *J. Urol.*, 12:611 (Dec.), 1924.
16. Sangree, H., Morgan, D., Klein, T., and Trasi, R.: Horseshoe kidney and the relation of nephritis and calculous formation to anomalous circulation, a report of twenty-five cases, *J. Urol.*, 32:648 (Dec.), 1934.
17. Walters, W., and Priestley, J. B.: Horseshoe kidney, a review of sixty-eight surgical cases, *J. Urol.*, 28:271, 1928.



## The Relation of the Private Physician to the Cancer Control Program

LYELL C. KINNEY, M.D., *San Diego*

THE private physician in California is officially represented in the cancer control program by the Cancer Commission of the California Medical Association. The Commission was organized by the C.M.A. House of Delegates in 1931 for the purpose of professional education in the diagnosis and treatment of cancer and for increasing cancer facilities in this state. In June, 1945, the C.M.A. Council directed the Commission to cooperate with and participate in the work of the American Cancer Society and to cooperate with public health agencies.

The Cancer Commission has made material progress in its objectives although its work was interrupted during the war years. During the past two years the pioneer Cancer Manual, known as "Cancer Commission Studies," has been revised and publication of chapters began in the May, 1947, number of CALIFORNIA MEDICINE. After publication in serial form the chapters will be bound for a refer-

ence manual and will be distributed to the members of the California Medical Association.

The Cancer Commission has established a speakers' panel of more than 100 of the outstanding physicians in California. Speakers on this panel are available to any county medical society in the state to address meetings or for Cancer Clinic days. The Commission has secured the cooperation of the medical schools in Los Angeles and San Francisco in giving refresher courses in cancer to practicing physicians. These refresher courses will be repeated at appropriate intervals and will be available to all members of the California Medical Association.

In the field of cancer facilities the Commission has encouraged the establishment of Consultative Tumor Boards wherever practical in approved general hospitals. The number of Tumor Boards has increased from 20 to 40 during the past year and at least ten other hospital staffs are considering the

establishment of Tumor Boards. The Commission has prepared for publication *Minimum Standards for Tumor Boards and for Cancer Detection Centers* to stimulate and develop these facilities in this state.

During the past two years the Cancer Commission has had the opportunity of working with the American Cancer Society in developing a new state organization and in preparing a policy for the hospitalization of needy cancer patients. During the past year the Commission has cooperated with the State Department of Public Health in assisting the Los Angeles County Medical Society to make a cancer survey. The Commission plans to continue these surveys throughout the state with the cooperation of the Department of Public Health and county medical societies.

The Cancer Commission is more than ever convinced that cancer control is fundamentally the problem of the private physician. As it was well expressed by the American College of Radiology, "The success or failure of any cancer control program is going to depend in a large measure upon the skill, knowledge, and attitude of the attending physician or family doctor." The great majority of cancer patients will first be seen by the family physician and the fate of these patients is primarily in his hands. Whether or not he insists on the immediate diagnosis and whether or not he obtains for his patient prompt and adequate treatment will determine the cure of a large percentage of cancer patients.

The effective program of popular health education by the American Cancer Society and Public Health agencies is bringing an increasing number of cancer patients to physicians while the disease is in the early stage and curable. The recognition and management of these early cases make the private physician the key factor in cancer control.

There is no longer any question that a large percentage of early cancer is curable. (See Table 1.)

TABLE 1.—Early Cases—Five Year Cures

Breast—no nodes involved .....	60-75%	Cheevers
Cervix—Groups I and II* .....	58%	Healy
Fundus of Uterus .....	75%	Corscaden
Testicle .....	42%	Pendergrass
Colon—no nodes .....	63%	Rankin
Rectum and Colon .....	53%	Lahey
Limited and no nodes .....	90%	Lahey
Larynx—cord only .....	80-85%	Tucker
Nasopharynx .....	31%	Stuart
Tongue, Tonsil and Gum .....	25%	Stuart

\* Schmitz Classification of Cancer.  
Classification I: Cancer localized to the cervix. Cervix freely movable.

Classification II: Cancer confined to the cervix, but uterus has impeded mobility.

Reference: Classification of Uterine Cancer, *American Journal of Roentgenology*, 1920, Vol. 7, p. 383.

However, even in early cancer, the curability depends upon immediate diagnosis and prompt, adequate treatment. Any appreciable delay may deprive the patient of 50 per cent of his chance of cure. The period of delay between occurrence of symptoms and

adequate treatment is the reason for much of our present mortality.

The lapse of time between the occurrence of initial symptoms and effective treatment (Table 2) is the most discouraging factor in the control of cancer today. This is particularly true in the case of carcinoma of the uterus. In a series of 235 cases at the Jefferson Hospital in Philadelphia, only 12 per cent were in Groups I and II of the Schmitz classification; that is, in a reasonably curable stage. The average duration of carcinoma of the rectum is 12.1 months (Newman), carcinoma of the cervix, 11 months (Macfarland), carcinoma of the breast, nine months (Haagenen).

TABLE 2.—Duration of Symptoms in Carcinoma Patients Before Treatment

	6 mo.	1 yr. or more	
Lung .....	50%		(Hollingsworth)
Body of the Uterus .....	50%	33%	(Corscaden)
Cervix .....	49%	28%	(Healy)

AVERAGE DURATION OF SYMPTOMS

Rectum .....	13.1 months	(Newman)
Cervix .....	11.0 months	(Macfarland)
Breast .....	35.4 weeks	(Haagenen)

The tragic note in this period of delay is the fact that most of it is unnecessary. It is largely due to the patient's ignorance, indifference, or fear. However, a significant part of the delay is ascribable to the attending physician. In 27 per cent of Haagenen's breast series at the Presbyterian Hospital in New York the patients said they had been seen by physicians and advised that the lesion was unimportant. In this group of cases the average delay was more than 18 months. Of a series of 83 cases at the Woman's Hospital in Philadelphia, Macfarland reports that in 23 per cent the responsibility for the delay rested upon the family physician. A more serious problem arises in carcinoma of the rectum. Graham reports a series of carcinomas of the rectum in which approximately 50 per cent of the patients received originally an incorrect diagnosis of bleeding piles or colitis. Jones reports from the Massachusetts General Hospital that over 75 per cent of the patients in whom carcinoma of the rectum was diagnosed had been previously treated for hemorrhoids.

The control of cancer mortality depends greatly on eliminating this period of unnecessary delay before treatment is begun. This can be accomplished by the education of the public and the education of the family physician. The program of lay education has advanced well in the last ten years through the publicity of the American Cancer Society, national insurance companies and Public Health agencies. The professional education of the physician has progressed more slowly and is probably the more important of the two. So important is this field of professional education that *one of the national medical societies is urging that all or most of the available federal funds be spent for education of the medical*

profession. Dr. Haagensen stated at the Nineteenth Graduate Fortnight of the New York Academy of Medicine that "For the present our best immediate hope of progress in our attack on cancer is better education of physicians in the use of proved diagnostic methods."

Professional education should be directed both to the importance of detecting early cancer and to the methods of early diagnosis. The physician in general practice sees relatively few cancer patients each year. Often he is not equipped to treat cancer cases. Because of these facts it is difficult to maintain his interest. However, the fate of the cancer patient lies in his hands. Most cancer patients are first seen by their family physician and accept his advice, and this entails a heavy moral responsibility. The private physician can ill afford to overlook early cancer or to delay in attempting to make a prompt diagnosis, or in obtaining adequate treatment for his patient. Education should be directed to the importance of a thorough examination, including biopsy in all suspicious lesions. The physician should suspect cancer in every patient over 40 years of age and should eliminate the possibility of cancer as a cause of presenting symptoms or as a latent lesion. He should be taught that reassurance of a patient or prescription without adequate examination may deprive a cancer patient of 50 per cent of his chance of cure. The physician should be taught the danger of metastases during any delay to "wait and see."

The physician should know what is adequate treatment for cancer. He should know that temporizing with any suspicious lesion may often condemn a patient to an untimely death. He should be taught that superficial cauterization of a skin cancer or a lesion of the cervix without biopsy, treatment of hemorrhoids without a rectal examination, fulguration of a black mole, are never justifiable.

The physician should also be encouraged to realize his personal limitations. Recognition of the lesion may save the patient's life, but if the physician is uncertain about the diagnosis or has not the facilities to arrive at a diagnosis, he should protect his patient and himself by seeking immediate consultation. If the physician has not the facilities or the training to give adequate treatment, he should direct his patient immediately to others who are competent to do so.

The physician in general practice, with careful examination and biopsy, can recognize at least 75 per cent of accessible cancers. If he is cancer-conscious and makes a practice of thoroughly examining suspicious lesions and demands an immediate decision, if he seeks consultations whenever he is in doubt, if he demands adequate treatment of his cancer patients, he can save many lives and prevent untold suffering.

There are five ways in which the practicing physician who is cancer-conscious can play a decisive role in cancer control:

1. By insisting in his own practice on an immediate diagnosis, frequently by biopsy, of every sus-

picious lesion and by demanding immediate adequate treatment.

2. By insisting on a complete physical examination of his patients over 40 years of age to determine whether or not they have cancer in addition to the lesion for which they are being treated. Too frequently the patient develops a carcinoma of the breast or cervix while under treatment for some unrelated condition.
3. By making a practice of periodic physical examinations to detect early cancer in his own patients. The nationwide publicity of the American Cancer Society is educating the public to expect periodic examinations for the early detection of cancer. Cancer Detection Centers will always cover only a small percentage of the population, and the privilege of cancer detection will always fall to the private physician if he will accept it. Periodic physical examination has been the policy of the American Medical Association for 20 years and the Cancer Commission of the California Medical Association urged this procedure in 1932 as the most effective way of discovering early lesions. *The physician in private practice can best educate his patients to the need of periodic check-up, and these examinations can be performed better in his own private office than elsewhere.* For this reason the Cancer Commission has developed and mailed to every member of the California Medical Association a periodic examination sheet, the use of which would greatly aid in noting early signs and symptoms of cancer. Additional copies of these blanks may be obtained from the office of your State Association.
4. By accepting cases that are referred to him by the county medical society, the American Cancer Society, or public health agencies for examination, diagnosis, or treatment. One of the present difficulties of the public health nurses and volunteer agencies is in not knowing to whom they may send patients with suspicious symptoms with assurance they will be sympathetically received and given a complete physical examination. Each county medical society should have a list of its members who are willing to accept and examine potential cancer patients and it should be prepared to refer inquirers promptly for intelligent medical advice.
5. By educating his own patients in the facts and danger signals of cancer. *Every physician's office should be a cancer information center.* The physician should respect the fear and anxiety of any patient who comes to him inquiring about cancer and he should take the problem seriously. The patient should be led to feel that he can come to his own doctor with intelligent questions or suspicions about cancer and receive an intelligent, sympathetic answer. Very few of these inquirers will be neurotics with cancerophobia. The patient should not feel that he is imposing upon his physician by asking for a periodic

physical examination, but he should be encouraged to come for an annual check-up and to bring to his physician his questions about cancer and his personal problems. Frequently patients will go to a Public Health agency because they feel that their own physician is not interested or would not give them the time for consultation and examination when they have no symptoms or when they are not really sick. The patient will receive lay education from magazines, the radio, and Public Health agencies, but he should be able to take his own problems and fears and those of his family to his private physician and know that he will be given the personal information that he needs.

The physician is the logical source of information in the community. His patients, his associates and his friends will have confidence in his statements regarding the dangers of cancer and the need for immediate action. The voluntary public health agencies should be able to call upon the physician to help them in their educational program on the radio, in the public schools, in clubs and in community meetings, for his interest and advice will carry more weight in his community than that of any outside speaker or agency. The interest of the public in the cancer control program will be in direct proportion to the interest and activity of the physicians in their community.

Throughout the state the Cancer Commission is finding that the physician is fearful that the cancer control program will encroach upon the private practice of medicine. There is no foundation for such fear. No matter what facilities may be established, the family physician will continue to see the vast majority of cancer patients in the first instance when they are curable, and he and his colleagues will have the first chance of achieving cure. The family physician will continue to be the determining factor in eliminating the sometimes fatal and always unnecessary delay before adequate treatment. The program of cancer consultation centers and detection centers is so organized in California as to assist and not compete with the practicing physician.

Tumor Boards are organized to aid when he needs consultation and his patients are then referred back to him. In the Detection Center the examinee who has suspicious symptoms or any evidence of disease is referred to his own physician for diagnosis and treatment, or he is referred to a physician under the direction of the county medical society. The information centers of the American Cancer Society refer all patients to a physician under a policy established by the county medical society. This program and policy will help the private physician to practice better medicine and will bring to his office patients who would not otherwise seek a physician while their disease is still curable.

The future program in the effective care of cancer patients is no different than the present procedure for the handling of other major diseases. The private physician who is practicing good medicine is continually seeking the advice and assistance of his specialist conferees in major surgical problems, difficult orthopedic cases, or obscure metabolic diseases. In so doing he does not lose his contact with or interest in the patient and he will not do so in the case of his cancer patient.

#### SUMMARY

The family physician who is cancer conscious is in the best position to find early cancer because the great majority of patients see their family physician first and will accept his direction and advice. Cancer detection by a periodic health examination must be obtained in the physician's office, since cancer detection centers can cover only a small part of the field. The most effective lay education can come from the physician in his contact with his patients and associates. The activities of the voluntary health agencies will receive public support in proportion to his interest and active participation. The program of cancer control will depend largely upon how effectively we can enlist his support. For these reasons the Cancer Commission believes that professional education of the private physician is the greatest immediate need in the Cancer Control Program.

1831 Fourth Avenue.



# CASE REPORTS

◀ Penicillin Resistant Cases of Subacute Bacterial Endocarditis Successfully Treated with Massive Dosage  
 ▶ Streptomycin Treatment of Tuberculous Tracheo-Bronchitis  
 ▶ Latent Malaria  
 ▶ Friedreich's Ataxia with Unusual Heart Complications

## Penicillin Resistant Cases of Subacute Bacterial Endocarditis Successfully Treated with Massive Dosage

RAYMOND D. GOODMAN, M.D., LOUIS J. FISHER, M.D.  
 DONALD E. GRIGGS, M.D., Los Angeles

**S**UBACUTE bacterial endocarditis caused by *Streptococcus viridens* can be successfully treated with penicillin.<sup>1</sup> Strains of *Streptococcus viridens*, however, vary in their resistance to chemotherapeutic agents. A practical measure of the sensitivity of resistance to penicillin is determined by the concentration of penicillin necessary to inhibit the growth of the organism in vitro.

If the growth of a strain of *Streptococcus viridens* is inhibited in the presence of less than 0.1 unit of penicillin per milliliter of serum, that strain may be said to be "sensitive."<sup>2</sup> If a strain of *Streptococcus viridens* is not inhibited in a concentration of 0.1 unit of penicillin per milliliter of serum, such a strain may be said to be "non-sensitive."

The majority of patients with subacute bacterial endocarditis, in which *Streptococcus viridens* is the etiological agent, will yield strains that fall into the "sensitive" group. Penicillin therapy with dosages in the vicinity of 300,000 to 500,000 units per day given in divided intramuscular injections every three hours for a minimum period of eight weeks, has been shown by Bloomfield and co-workers<sup>2</sup> to be adequate for the successful treatment of a "sensitive" strain.

Inadequate dosage of penicillin early in the course of treatment has been shown by Spink and co-workers<sup>4</sup> and others<sup>2</sup> merely to increase the resistance of the strain and, in some instances, to convert a "sensitive" strain to a "non-sensitive" one.

The following is the report of a patient in whom this phenomenon of increasing resistance to penicillin is demonstrated. Later this patient was apparently cured by three million units of penicillin daily for a period of more than ten weeks. A total of 338,510,000 units of penicillin was given this patient during a period of 13 months. To our knowledge this is the largest total amount of penicillin ever administered to a patient with subacute bacterial endocarditis.

### REPORT OF CASE

A 25-year-old white man entered the Los Angeles County General Hospital on November 20, 1944. He had been slightly dyspneic on moderate exertion for two months. On November 16 he developed anorexia, general malaise, and a fever of 102 degrees F. On the following day he had a chill, and his temperature rose to 103 degrees F. He noted dull aching pains in his ankles, knees and back. On November 18 and 19 he had a non-productive cough and complained of chest pain, which was independent of respiratory motion.

The patient had had acute rheumatic fever when he was 11 years old. This was characterized by migratory joint pains

in both ankles and knees, with fever and generalized weakness. He had no known heart involvement until two months prior to admission, when a private physician had told him he had a "murmur" and advised lighter work. He had had frequent sore throats until his tonsils were removed one year prior to entry. There was no history of congestive heart failure.

**Physical Examination:** Revealed a well developed and well nourished young man, moderately ill, but in no acute distress. Head and neck were essentially negative. Blood pressure was 150/80 mm. mercury. The apex impulse of the heart was palpated in 5th interspace at the mid-clavicular line; rhythm was regular with a rate of 90. The P2 sound was greater than the A2. There was a Grade II blowing systolic murmur heard at the apex and transmitted to the axilla. A diastolic murmur was not heard. The lungs and abdomen normal. The spleen was not palpable. The skin was clear and there were no petechiae.

**Laboratory Findings:** The Wassermann was negative. Urinalysis was reported as normal. The value for hemoglobin was 14.1 gm.; erythrocytes numbered 4,250,000 and leukocytes 7,800, with a normal differential. The sedimentation rate was 2 mm. in one hour (Wintrobe). Agglutination tests for typhoid, paratyphoid, typhus, and brucella were negative. Three blood cultures were positive for *Streptococcus viridens* before treatment was begun. The electrocardiogram was normal except for tendency toward right axis deviation. X-ray showed lung fields to be clear and cardiac enlargement was not noted.

A diagnosis was made of Subacute Bacterial Endocarditis, Probable Mitral Valvulitis. No cardiac enlargement. Class II D.

### THERAPEUTIC PROGRAM

**Sulfonamides:** By December 1, 1944, ten blood cultures had been drawn, the first three of which had already yielded *Streptococcus viridens*. Sulfadiazine, 4 gm. initially and 1 gm. every four hours was given by mouth. On December 14, 1944, sulfadiazine was discontinued for two reasons. First, the blood cultures remained positive. Second, the tests in vitro showed that the strain of *Streptococcus viridens* obtained on blood culture was not inhibited in the presence of 20 mg. per cent of sulfanilamide, sulfathiazole or sulfadiazine. At a later date sulfamerazine was available and this was given orally for 30 days without benefit. No sulfonamide complications were manifest.

**Artificial fever:** Employing a standard variety of fever cabinet, two series of fever treatments were administered. Each series consisted of six fevers with a total of 29 hours above 104 degrees F. During each series a total of 6 gm. of sulfamerazine orally and 260,000 units of penicillin in divided intramuscular injections was administered. These treatments were ineffectual.

**Penicillin:** Penicillin was a drug of limited availability for civilian purposes in 1944. On December 7, 1944, penicillin was started, using 20,000 units intramuscularly every four hours. Two days later the dosage was diminished to 15,000 units every four hours. After a little more than three

From the Department of Medicine, College of Medical Evangelists and the Los Angeles County General Hospital.

weeks of therapy, the dosage was further reduced to 10,000 units every four hours intramuscularly.

The blood cultures became negative during the first two weeks of treatment, but were positive soon after the dosage was reduced to 10,000 units every four hours. When it was realized that the dosage was inadequate, the schedule was increased on January 8, 1945, to 20,000 units every four hours. This was the maximum amount available for this patient at that time. On January 11, 1945, it was possible to increase this to 20,000 units every three hours. Despite this increase the blood cultures remained positive. With the increasing availability of penicillin the dosage was again increased on February 14 to 30,000 units every three hours. On March 28, this same dosage was given every two hours. The daily dose totaled 360,000 units. Blood cultures remained positive for *Streptococcus viridans*. On April 10, the dosage was increased to 40,000 units every two hours. Between May 3 and May 11, it was decided to administer 500,000 units daily by a continuous intravenous drip. This method was abandoned at the end of this period because of an extensive thrombophlebitis that developed in all extremities employed. Heparin was not used. On May 11, the previous schedule of 40,000 units every two hours intramuscularly was resumed and continued without interruption until October 25, 1945. During this period the blood cultures remained positive.

After discussion of the case history with Bloomfield,<sup>3</sup> a daily dosage of three million units was given by continuous i.v.

intramuscular drip. Blood cultures drawn on the following day were sterile. Over a period of 14 months during which the patient was followed after penicillin therapy was discontinued on January 6, 1946, all blood cultures remained sterile.

Numerous blood samples were examined during the period from October 28 until November 4, 1945, to determine the concentration of penicillin in vivo at different times of the 24-hour period of continuous therapy. At no time was there a concentration under 0.5 units per ml.; the levels ranged from 0.5 U/ml. to 2.0 U/ml.

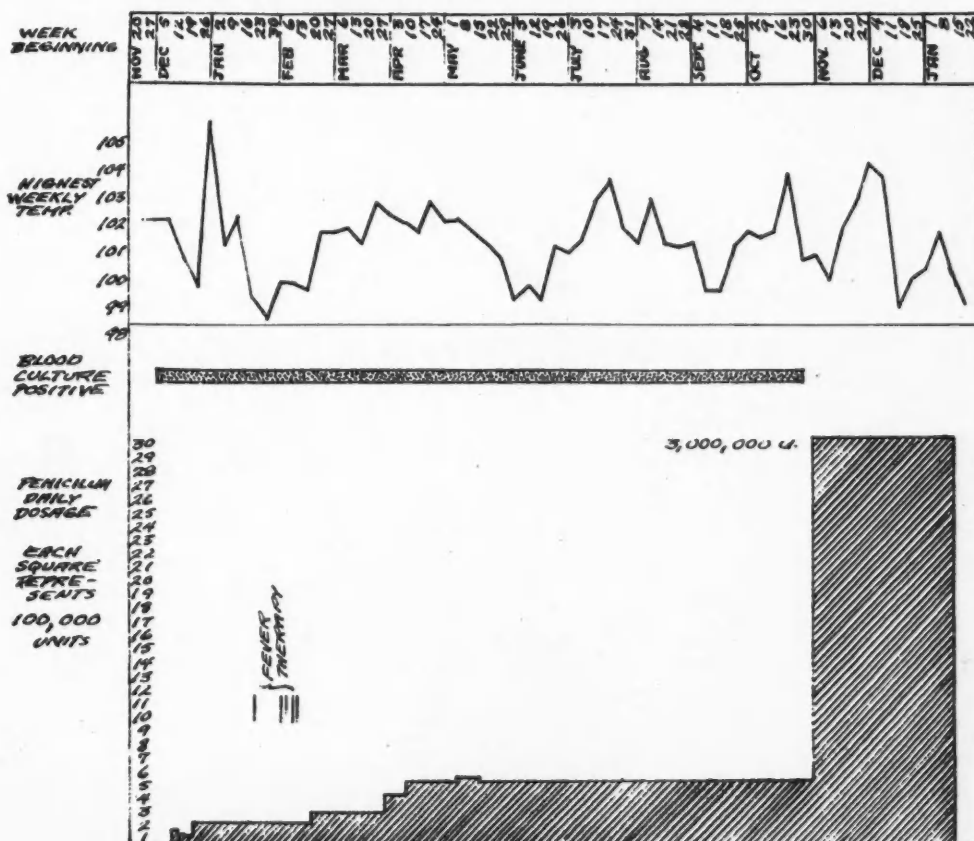
Sensitivity tests were reported as follows: On December 5, 1944, it required 0.2 unit per ml. to inhibit the growth of the streptococcus obtained on culture. On January 9, 1945, it required only 0.025 units per ml. to inhibit growth. After the reduction of penicillin dosage, the resistance of the organism to penicillin increased and the following units per ml. were required to inhibit growth: April 10, 1945, 12.5 units; May 11, 1945, 1.5 units; June 19, 1945, 50 units; July 21, 1945, 0.9 units; and September 7, 1945, 0.4 units. The organism at all times must be classed as "resistant" to penicillin. The resistance, however, increased during inadequate therapy. The wide variations of this test are not explained.

#### CLINICAL COMPLICATIONS

Anemia developed shortly after admission to the hospital, necessitating frequent blood transfusions.

A persistent fever was present (except for a few days

Chart 1.—Penicillin dosage, blood cultures, and highest weekly temperatures.



from the date of entry November 20, 1944) until three days after penicillin was discontinued on January 6, 1946. Since January 9, 1946, the patient has remained totally afebrile.

Auricular fibrillation developed once four weeks after the patient's entry into the hospital. A normal sinus rhythm was restored after three days of the administration of Cedilanid and small doses of quinidine.

Epistaxis was the most common hemorrhagic phenomenon in this patient. On one occasion the bleeding was so profuse that transfusion with whole blood became necessary. Small retinal hemorrhages were noted frequently. These were associated with transient episodes of blurred vision.

Petechiae were present on many occasions. They appeared in the retinae, conjunctivae and on the extremities.

A probable cerebral embolus with auditory aphasia developed on August 23, 1945. The significant positive findings which supported this diagnosis were (1) an inability to speak, (2) bilateral Babinski signs and hyperactive deep tendon reflexes. The patient was critically ill during this period. Nearly one month was required for the aphasia to

clear significantly. Almost one year later the patient still had slight residual aphasia.

Renal colic was present on three distinct occasions. This was accompanied by the presence of red blood cells, white blood cells and a trace of albumin in the urine, which suggested an embolic glomerulo-nephritis, or small renal infarcts.

Thrombophlebitis developed in all veins employed for the continuous intravenous infusion of penicillin.

A sterile abscess developed in the thigh on December 2, 1945, after more than a month of continuous intramuscular drip of three million units of penicillin daily which was administered in 1 liter of normal saline. This abscess was incised and drained. Thick, brown, sterile pus was evacuated. Later both thighs became continuously inflamed until the penicillin was discontinued. The inflammatory process promptly subsided with the discontinuance of the penicillin, and three days after the drug was stopped, the temperature returned to normal levels for the first time in approximately 14 months of treatment.

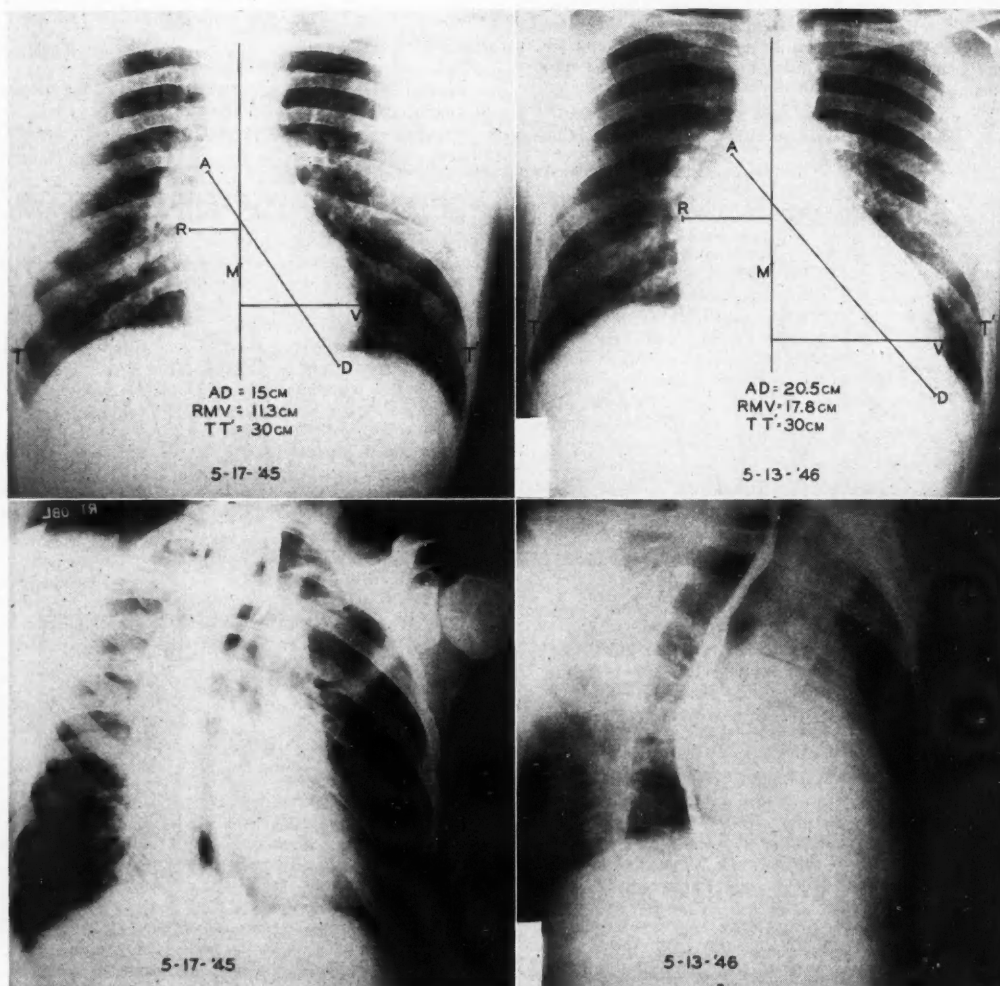


Figure 1.—Films of chest demonstrating cardiac enlargement occurring during treatment. The oblique views show the enlargement of the left auricle with posterior deviation of the esophagus.

Progressive heart disease during and following penicillin therapy was evidenced by increasing cardiac size (Figure 1). As late as May 17, 1945, fluoroscopic examination and films of the heart showed no evidence of cardiac enlargement. On May 13, 1946, less than a year later, the transverse diameter of the heart had increased from 11.3 cm. to 17.8 cm. The cardiothoracic ratio increased from 0.38 to 0.59. The longitudinal diameter of the heart increased from 15 cm. to 20.5 cm. In the right oblique position x-rays indicate the development of a marked posterior deviation of the esophagus which indicates left auricular enlargement.

Electrocardiograms taken before and after treatment show a change from a normal electrocardiogram to one in which there are large notched P waves, right axis deviation, and inverted T waves in leads II and III.

There was a definite change in the character of the heart findings. On the original examination the systolic murmur at the apex was a blowing murmur intensity grade II, and the blood pressure was 150/80. On re-examination on May 10, 1946, the intensity of the systolic murmur at the apex was graded as IV to V. It extended throughout the whole systole and ended with an unusually loud second sound which is unusual at the apex. No diastolic murmurs were heard. The blood pressure on May 10 was 148/106, and the diastolic pressure was consistently over 100 while the systolic pressure rose as high as 168.

Signs of congestive heart failure were thought to be present at the time of the patient's visit to the outpatient clinic in April, 1946, and he was admitted to the General Hospital for a period of ten days. At this time digitalis and ammonium chloride were given. Following this the shortness of breath and swelling of the ankles markedly improved, and the patient continued on the same program. He has returned to work.

#### CONCLUSIONS

1. A total of 338,510,000 units of penicillin was administered to a patient who had subacute bacterial endocarditis.
2. This patient who had a penicillin resistant strain of *Streptococcus viridans* and who was not benefited by 480,000 units of penicillin daily for six and one-half months, was apparently cured by three million units of penicillin daily for 72 days.
3. The patient's temperature remained elevated until three days after penicillin was discontinued, although the blood cultures were consistently negative immediately after beginning the three million unit daily dosage.
4. It is important to evaluate the penicillin sensitivity of the strain of *Streptococcus viridans* in order to properly treat subacute bacterial endocarditis. Extremely large doses of penicillin should be used early in patients who have a penicillin resistant strains of *Streptococcus*.
5. The dangers of inadequate early therapy are illustrated by relapse, by increased resistance to penicillin and by the rapid progression of the cardiac disease as evidenced by enlargement of the heart and congestive failure.

#### REFERENCES

1. Bloomfield, Arthur L., Armstrong, Charles D., and Kirby, William M. N.: The treatment of subacute bacterial endocarditis with penicillin, *J. Clin. Investigation*, 24:251 (May), 1945.
2. Bloomfield, Arthur L., and Halpern, Richard M.: The penicillin treatment of subacute bacterial endocarditis, *J. A. M. A.*, 129:1135 (Dec. 22), 1945.
3. Bloomfield, Arthur L.: Personal communication.
4. Spink, W. W., Ferris, V., and Vivino, J. J.: Antibacterial effect of whole blood on strains of staphylococci sensitive and resistant to penicillin, *Proc. Soc. Exper. Biol. and Med.*, 55:210 (March), 1944.

## Streptomycin Treatment of Tuberculous Tracheo-Bronchitis

EMIL BOGEN, M.D., *San Fernando*, and  
LYMAN A. BREWER, III, *Los Angeles*

**T**UBERCULOUS tracheo-bronchitis has become recognized, during the past decade, as a frequent complication of pulmonary tuberculosis, which interferes with respiratory function, leads to spread of the disease, and often precludes the application of collapse measures otherwise indicated. Although many cases heal by resolution or by scarring which may lead to fibrous stenosis with further complications, the usual course is slow and hazardous. Accordingly a new treatment which has led to rapid healing of such lesions in every one of a series of cases so far treated appears worthy of report.

A white male, 26 years of age, found to have moderately advanced pulmonary tuberculosis on a routine x-ray examination, was admitted to a Veterans Administration hospital. Artificial pneumothorax was induced on the left side in July, 1946, and had been maintained since. Bronchoscopic examination in August, 1946, and again in September, 1946, showed ulceration and granulations in the left main stem bronchus more than half occluding its lumen. Streptomycin treatment was begun on September 5, 1946, the day after the second bronchoscopy, and was continued for a period of three months. Two grams of streptomycin was given in six intramuscular injections, four hours apart, every day, and 0.5 gm. of streptomycin was given daily by aerosol inhalation every two hours during the daytime.

Repeated bronchoscopic examination showed remarkably rapid subsidence of the lesion, with disappearance of the obstructing granulations and restoration of apparently normal mucous membrane in an only slightly narrowed bronchus in only six weeks. Repeated bronchoscopic examinations in the six months since cessation of the treatment have shown no evidence of recurrence. The patient's sputum has become negative and there has been marked clinical improvement, both physically and psychically, although rest and the pneumothorax regimen are being continued. During the second month of treatment the patient was considerably disturbed by symptoms of vestibular dysfunction, and since then has shown a complete absence of response to caloric tests. He has adjusted well, however, and shows good compensation by the use of other senses.

Twenty other patients, treated with streptomycin for periods of from one week to three months have all shown the same rapid healing of open ulcerative or granulating tuberculous lesions of the trachea and bronchi. Recently much smaller doses without aerosol have yielded similar success with no vestibular dysfunction.

U. S. Veterans Administration Hospital, San Fernando.

## Latent Malaria

EDMUND E. SIMPSON, M.D., *Sacramento*

**R**ECENTLY there have been frequent warnings of the need for physicians to be more aware of those diseases not commonly seen in temperate climates but likely to be prevalent now by virtue of the return of those in the armed forces who have served overseas. No one will deny that malaria must be included in this group. London and others,<sup>1</sup> in a study of the delayed primary attack of vivax malaria, found in 101 cases a variation of onset of 3 to 104 (mean 41) days after cessation of suppressive medication. Most and Hayman<sup>2</sup> have described uncommon clinical variations in malaria and stated that the delayed primary attack may occur in a few individuals as long as a year after the cessation of

suppressive medication. Scheiffley<sup>3</sup> reported a case occurring 12 months or more following the discontinuance of atabrine, and stated that he had been unable to find any reports of cases in which the clinical attack occurred more than eight months after exposure.

The following case, in which the delayed primary attack occurred 16 months after cessation of suppressive doses of atabrine, is reported primarily to call attention to the long time that may elapse before the onset of the first attack of clinically recognizable malaria.

#### CASE REPORT

A 28 year old male was admitted to Sutter Hospital, Sacramento, January 24, 1947, complaining of severe headache and fever of six days' duration. He had become ill after returning to his home from a skiing trip of about six hours' duration at 6,000 feet elevation. Headache, intermittent fever, and some general malaise were the only complaints. The following day he felt well enough to work, but developed fever and a chill and returned home. He was first seen the third day of the illness and nothing could be found on examination to account for the complaints. The next day he felt no different. Erythrocyte count and hemoglobin value were normal. The leukocyte count was 2,050, with a normal distribution. Sedimentation rate (Wintrobe) was 7.0 mm. in one hour. Except for 1 plus proteinuria, the urine was normal. The following day the leukocyte count was 9,000, with little change in the differential count.

The patient had served in the South Pacific from May, 1942, to September, 1945, and during this time had taken atabrine for suppressive purposes. He stopped all atabrine September 22, 1945, when he sailed for home. While in the Army he had had pneumonitis in Hawaii in 1942, mumps in Australia in 1943, and mild dysentery in New Guinea in 1944. He had never had any illness which even remotely suggested malaria.

Malaria was considered but in view of what seemed an unreasonably long latent period it was felt the patient was probably suffering from a virus infection of some sort, and hospitalization was advised. Repeated physical examinations were negative, except that the patient looked ill while he had fever, and seemed well when he did not. At no time could the spleen be felt. Whereas fever at first had been irregular, it soon became evident that chill and fever were coming fairly regularly every other day.

On the third day after admission blood smears taken three hours before another chill showed many trophozoites of the vivax type. Atabrine was begun at once, and the patient had one more chill of less severity two days later. The day after the trophozoites were found, more parasites were seen in a smear. This time most of them were in the ring stage. The patient had shown repeatedly a leukopenia (the leukocyte count having risen to 9,000 on one occasion only) and relative monocytosis; and at no time was there significant anemia.

The patient took a total of 2.8 gm. of atabrine, and was then told to take 0.6 gm. of quinine daily for eight weeks. However, because of severe hyperidrosis without fever, he discontinued the quinine after one week. He has not yet had a second attack.

#### COMMENT

There seems no reasonable doubt that this patient's attack of malaria came about as a result of inoculation in the South Pacific sometime (or repeatedly) in the period 1942-1945. Between the time of cessation of suppressive medication and the onset of symptoms there was a quiescent period of 16 months. Although the author knows of no reported latent period of this duration, others have indicated that even longer periods may not be rare. Walker<sup>5</sup> has knowl-

edge of several cases in which overt vivax malaria did not develop until 12 to 15 months after discontinuance of suppressive atabrine, and Turner<sup>4</sup> has seen two cases in which clinical malaria developed two years after the patients had left the Pacific.

Change of altitude to a higher level has been found to precipitate an acute attack of malaria in a person seeded with the organism. The patient reported above developed the first attack a matter of hours after return from an elevation of 6,000 feet. Earlier in the day he had been practically at sea level. This was not, however, his first such trip. He had, in fact, made several skiing trips, and on one occasion had remained a week at high altitude. The factors responsible for precipitating the attack at this particular time remain unknown.

#### SUMMARY

A case of vivax malaria is reported in which there was a latent period of 16 months between the cessation of suppressive atabrine medication and the onset of the primary attack of the disease. Malaria must be considered in any patient with a febrile illness of unexplained cause.

#### REFERENCES

1. London, I. M., Kane, C. A., Schroeder, E. F., and Most, H.: The delayed primary attack of vivax malaria. *New Eng. J. Med.*, 235:406-410 (Sept. 19), 1946.
2. Most, H. and Hayman, J. M.: Uncommon clinical manifestations of vivax malaria. *J. A. M. A.*, 130:480-484 (Feb. 23), 1946.
3. Scheiffley, C. H.: Malaria: A note on its latency and report of a case. *Proc. Staff Meet. Mayo Clinic*, 22:49-52 (Feb. 5), 1947.
4. Turner, Roy H.: Personal communication.
5. Walker, A. J.: Personal communication.

### Friedreich's Ataxia with Unusual Heart Complications

WALTER W. ELLWOOD, M.D., *Glendale*

OF all the progressive diseases with a poor prognosis, Friedreich's Ataxia is one of the rarest. It is a familial, heredodegenerative disease<sup>1</sup> which occurs in children and has a fairly definite clinical picture and course. The characteristic symptom of the disease is ataxia. The patient gradually begins to walk on a broad base, has difficulty in climbing stairs, and stumbles or falls. The speech becomes slow, unclear and dysarthric, or there may be scanning and syllabilization. In some cases, the speech difficulty is the first symptom to attract attention. There are sensory disturbances of the lower extremity with impairment of position and vibratory sensation. Nystagmus is present, and clubfoot with marked arching of the foot produces chronic hyperextension of the big toe. Some cases show scoliosis in the thoracic area. The deep reflexes are usually absent but the Babinski is positive. Some patients show ataxic breathing, and often when the patient is seated in a wheelchair, the head bobs from side to side. Mentality is usually intact but it may be retarded.

Study of members of a family discloses the existence of incomplete or mono-symptomatic types; that is, there may be arched feet or nystagmus alone, or absence of reflexes.<sup>2</sup> Other symptoms in individuals are not merely abortive or atypical, but intermediate between symptoms of the disease and those of other diseases. Patients who have the disease gravitate to homes for the incurables or hospitals for chronic

From the Outpatient Medical Clinics and Medical Service, Fairmont Hospital of Alameda County, San Leandro, California.

diseases, some living for 30 or 40 years after the onset in childhood. The disease is centered in the spinal cord<sup>2</sup> with degeneration of the pyramidal and dorsal spinocerebellar tracts. This combined degeneration of the posterior and lateral columns<sup>4</sup> becomes less marked as the tracts are traced upward. The cord is smaller than normal. The cerebellum shows a wide variety of changes, but in general there is degeneration of the ganglion cells.

The disease usually begins at the age of seven or eight, although sometimes after puberty. Brothers and sisters may be involved, and it may occur in many generations. The disease progresses inexorably until the patients are bedridden.

During the past year, the author has seen and examined three cases of Friedrich's Ataxia. In the progress of one case, the patient developed paroxysmal auricular tachycardia, which was resistant to treatment. Periodically the pulse rate would be increased only to revert to a lower rate after treatment. During one of the attacks of tachycardia, congestive heart failure developed and the patient died. While investigating the frequency of heart complications in Friedrich's Ataxia, the author came across the records of two sisters who were afflicted with the disease, one of whom developed a heart complication. Both were treated in this hospital. One died suddenly at the age of 27 and autopsy revealed an acute myocardial infarction.

#### CASE NO. 1

The patient, a woman 27 years old, entered the hospital on November 24, 1944. Interview elicited that she had first noticed trouble with writing at nine years of age. At age 12, she noted difficulty in walking. She had malaria at the age of 11 and was in bed for one year at that time. She was supposed to have a "leakage of the heart" which had begun before the age of nine and had taken medicine for this "heart trouble" while in grade school. She had had measles, chickenpox and whooping cough. Menses began at 14. The rest of the past history was negative.

Examination revealed a well-nourished young woman with a scoliosis. There was bilateral exophthalmos. The heart was enlarged and a systolic murmur was heard over the precordium. The deep reflexes were absent in both lower extremities and the Babinski was positive. Nystagmus was present. Sphincter control was intact. The tuberculin test was negative. A diagnosis of Friedrich's Ataxia was made.

Occasional spells of vomiting were easily controlled. On March 20, 1945, severe dyspnea developed. The pulse was irregular, and the neck veins were distended. Upon administration of digitalis the dyspnea disappeared.

There was no further change in the condition until August 27, 1945, when one of the resident physicians noted a change in the patient's personality. Previously a very pleasant person, the patient now was constantly finding fault with everyone and was unkind to attendants. The pulse at this time was found to be irregular. On October 19, 1945, a severe pain in the right lower quadrant of the abdomen developed, without vomiting. As there had been no bowel movements for four days, an enema was given and the abdominal pain stopped. On October 27 there was a similar attack, but with vomiting, and although the emesis stopped following an enema, the temperature at this time was 101.2 F.

At 4 a.m. on October 28, the patient suddenly became very cyanotic and no pulse could be felt. Respirations were shallow and rapid and the heart sounds barely audible. The patient died at 8:30 a.m.

Autopsy revealed the following: The right lung weighed 450 grams and the left lung 300 grams. Both showed acute edema. The heart weighed 425 grams. The left ventricle was 15 mm. thick and the right ventricle 8 mm. thick. The tricuspid and pulmonic valves were normal. In the mitral

valve there was some evidence of scarring of the leaflets and a slight nodular thickening at the bases, but no ulcerations or vegetations. The aortic valve was normal, and the ascending aorta showed a minimal amount of atherosclerosis. A small, friable blood clot was seen emerging from the left coronary ostium. With some difficulty it was removed, leaving a string-like thrombus traced to the bifurcation of the left coronary artery. When the heart muscle was dissected, an area at the apex was pale and blanched in comparison with the remainder of the ventricular wall. There was also some old scarring of the myocardium. The rest of the findings were negative except for a cyst of the right ovary.

*Anatomical diagnoses:* Acute pulmonary congestion and edema; cyst of the right ovary. On the basis of the heart findings, the autopsy surgeon added a probable coronary thrombosis to the anatomical diagnoses.

#### CASE NO. 2

A 21-year-old male patient who entered this hospital on October 31, 1944, had not walked for nine years. Past history disclosed that when examined at the University of California Hospital in March, 1935, at the age of 12, he had stated that the infirmity had been present for four years. He was markedly ataxic then, could barely walk, and had difficulty in speaking. A diagnosis of Friedrich's Ataxia was made and he was discharged from the University of California Hospital with instructions to report to the outpatient clinic there, which he did but once, on June 20, 1935. Thereafter the patient apparently had care from private physicians until his admission to this hospital.

At this time he could not walk, could barely sit up alone, spoke with a stuttering voice, but was euphoric. The deep reflexes were lost and there was also loss of bladder control. Routine care was given and the patient was up in a wheel chair daily. There was no change in condition for the next two years. He remained euphoric and often asked permission to try to walk with crutches or in a walker, but marked ataxia prevented this. When first seen by the author, the patient was still cheerful and hopeful that some treatment would be found to cure his condition so that he could start the study of medicine, which he yearned to do.

The family history was negative. There was no evidence of the disease in two younger sisters. Ataxic breathing was marked and sometimes the patient would scream or cry out in a loud voice for no apparent cause.

On October 4, 1946, abdominal pain developed. There had been no bowel movements for several days. This was remedied by enemas. Five days later, severe dyspnea developed, with a pulse rate of 190 which was lowered to 160 by ocular pressure. A tentative diagnosis of paroxysmal auricular tachycardia was made and was later confirmed by an electrocardiogram. The next day, when pressure over the eyeballs and carotid sinus failed to affect the pulse rate, which then was 180, a rapid course of intravenous digitalization was started.

Between this period and the time of death from congestive failure on December 18, 1946, the course was one marked by auricular fibrillation, bouts of regular rhythm, irregular respiration with variable response to therapy with digitalis and quinidine.

At autopsy, the meninges were congested, but the brain looked grossly normal. There was 300 cc. of fluid in each pleural sac. The left lung was edematous. The middle and lower lobes of the right lung were atelectatic and the upper lobe was edematous. The heart was enlarged and weighed 400 grams. The pericardium contained 120 cc. of pale yellow fluid. All valves, the aorta, and the coronary arteries appeared normal. The internal organs showed passive congestion.

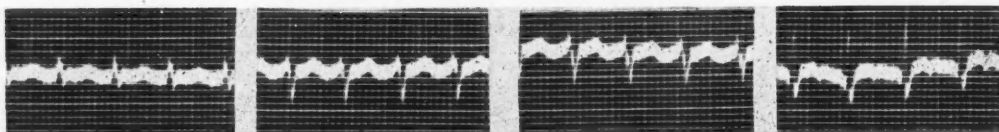


Figure 1. Case 2.—Standard leads October 10, 1946. Paroxysmal auricular tachycardia. Rate 180. Left axis deviation.

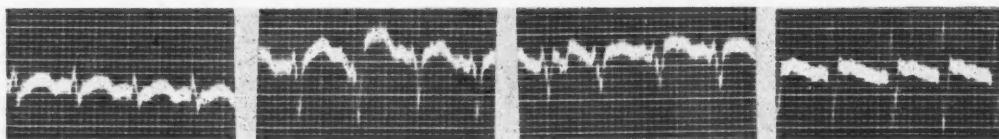


Figure 2. Case 2.—December 8, 1946. Rate 180. Left axis deviation. Evidence of myocardial damage present.

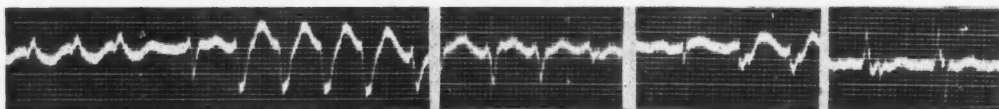


Figure 3. Case 2.—December 10, 1946. Note change of rate from 110 to 160. Patient on quinidine. In lead I note alternation of cycle length as described by Barker et al. and also abrupt change to paroxysmal ventricular tachycardia. Diffuse myocardial damage.

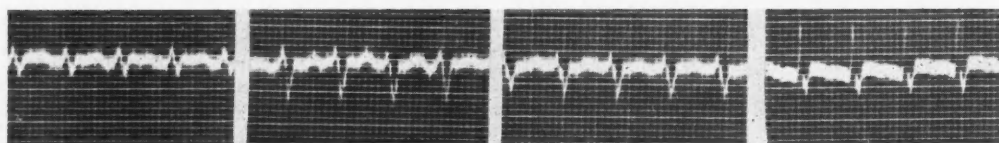


Figure 4. Case 2.—December 14, 1946. Rate 180. Left axis deviation. Reoccurrence of tachycardia. Note resemblance to Figure 1.

*Anatomical diagnoses:* Cardiac hypertrophy; atelectasis, right middle and lower lobes; pleural effusion, bilateral; pulmonary edema, bilateral. On microscopic examination, the liver showed severe chronic passive congestion. There was marked cardiac hypertrophy and diffuse interstitial fibrosis; the lungs showed chronic passive congestion and purulent lobular pneumonia. Sections of the cerebrum, cerebellum and spinal cord were not remarkable. In the medulla, the olivary nuclei contained numerous nerve cells with large, relatively clear vacuoles distorting the shape of the cells.

#### COMMENT

Two cases of Friedreich's Ataxia are reported. This condition, although rare, can usually be seen in hospitals for chronic diseases or in university hospitals which have a large turnover of patients. Diagnosis of a fully-developed case is not difficult, especially since in some cases there is a history of other members of the family being similarly affected. Difficulty in diagnosis comes in those cases which are not full blown, but are either incomplete or monosymptomatic, or abortive and atypical.

Patients with this disease may live for many years. How-

ever, cardiac complications may set in at an early age with death resulting. In Case No. 1 the outcome was a myocardial infarction in a woman 27 years of age, which is unusual. In Case No. 2, congestive heart failure developed following paroxysmal tachycardia in a man of 23 years of age. This patient died also.

Friedreich's Ataxia is a slowly progressive chronic disease which usually begins in childhood. Because very little is known of the causes, the physician can add very little in the way of treatment.

621 Galer Place.

#### REFERENCES

1. Wechsler, I. S.: Textbook of clinical neurology, W. B. Saunders Co., Philadelphia, 1944, pp. 122-124.
2. Wilson, S. A. K.: Neurology, Williams & Wilkins Co., Baltimore, 1940, pp. 943-956.
3. Moore, R. A.: Textbook of pathology, W. B. Saunders Co., Philadelphia, 1944, pp. 1182-83.
4. Boyd, W.: Pathology of internal diseases, Lea & Febiger, Philadelphia, 1945, pp. 786-788.



## CLINICAL SYMPOSIUM

Prepared under the direction of EDGAR WAYBURN, M.D., *San Francisco*, and  
CLARENCE J. BERNE, M.D., *Los Angeles*

### Treatment of Hypertension

#### Medical Aspects:

WALTER BECKH, M.D.\*

DR. BECKH: In order to treat the hypertensive patient intelligently, a diagnosis of the type of hyperpiesis is essential. In the determination of the cause of hypertension, there are numerous steps that must be taken to arrive at the answer.

TABLE I.—Steps to Be Taken in Determining the Cause of Hypertension

History, physical examination, blood count, urinalysis, sedimentation rate.
Non-protein nitrogen
Urinary sediment count (Addis)
Dilution-concentration test
Phenolsulphonephthalein test
Chest x-ray
Pyelography, intravenous and/or retrograde
Histamine test

Not necessarily all the steps in Table I will need to be taken in every case. The dilution-concentration test is one of the most valuable we have, and it is about the cheapest, too, whether we use it in the Fishberg, Mosenthal or Volhard modification. If the specific gravity on concentration is considerably lower than normal and during the "diluting" period its values vary much or are abnormally low, we know that we are dealing with far advanced bilateral kidney disease.

The phenolsulfonephthalein test is useful and cheap. Anyone using the PSP test should adopt the modification of Halsted and Chapman, who pointed out that 15 and 30 minute excretion time measurements in many cases show evidence of kidney damage not shown in the one and two hour method. One cubic centimeter of the dye should be injected intravenously, with the bladder emptied and following the ingestion of about a quart of water. Normal values are 35 per cent and 18 per cent dye excreted within 15 and 30 minutes respectively.

An x-ray picture of the chest should be taken for information as to the size of the heart and because it tells about coarctation of the aorta which shows itself in the scalloping of the ribs. In a physical examination on a new patient with hypertension, the blood pressure should always be taken in the thigh as well as the arm. Usually the blood pressure readings in one thigh are sufficient to rule in or

out coarctation of the aorta. Normally, the blood pressure in the thigh is 30 to 40 mm. higher than in the arm, but if the blood pressure in the thigh is much lower than normal or is absent, then one knows immediately that the patient very probably has coarctation of the aorta.

Pyelography may give us a great deal of information. In cases in which intravenous pyelography is not satisfactory through lack of concentration of the dye, retrograde pyelography may be valuable.

As to the histamine and other related tests, the one most commonly used is the intravenous histamine test first proposed by Kvale and Roth at the Mayo Clinic. In non-pheochromocytoma patients, normal and hypertensive, there is no great rise of the blood pressure on intravenous injection of 0.025-0.05 mg. of histamine base, but with pheochromocytomas there is an immediate and sharp rise. This appears to be an excellent test, but it has not been done extensively enough to provide knowledge of the percentage of failures. Another trouble with it is that at times there may be a hesitation on the part of the physician to induce a still further pressure elevation, even though only temporarily, in a person whose blood pressure is already at dangerous levels, lest a cerebral vascular damage occur during the test. The air injection method by which a tumor of an adrenal may at times be visualized has been abandoned due to the great danger of inducing fatal air embolism. More recently, the tetraethyl ammonium (Etamon) test has been used, but it is probably not satisfactory for this purpose.

Let us now turn to the methods of treatment. Before becoming more specific I would like to emphasize that numerous factors affect the particular considerations in each case, such as the age of the patient, the duration of the hypertension, the severity of the blood pressure elevation, the presence or absence of symptoms, overweight, and heredity. Essential hypertension in the very young age group is not usual, and the psychogenic factors which can be so important later on in life are at a minimum during this period. A patient above the age of 55 or 60 has reached a period in life at which for social and other reasons a solution of the problem is not nearly so important as in younger years. In patients of this higher age group, some of our therapeutic procedures, such as sympathectomy, are thought to be contraindicated except for symptomatic relief. I shall therefore confine my remarks to a large degree to patients in early and middle age.

\* Taken from Postgraduate Review Course, Stanford University School of Medicine, September 11, 1947.

\* Assistant Clinical Professor of Medicine.

† Clinical Instructor in Surgery.

#### Surgical Aspects:

ALBERT C. DANIELS, M.D.†

TABLE 2.—Methods of Therapy in Use at Present

Medical	Surgical
General—rest, relief from worry, etc.	Obliteration of coarctation of aorta
Discontinuance of tobacco	Unilateral nephrectomy
Sedatives	Sympathectomy
Vasodilators	
Diet	
Vitamin A	
Rutin	
Tetraethyl ammonium salts	
Thiocyanates	

I am not going to dwell on the first item in Table 2. It is well to bring out the need for discontinuing tobacco. In some people tobacco induces peripheral vasoconstriction and thereby may cause elevation of blood pressure over that already existing. Since improvement may be due to the summation of several things which the patient does upon the physician's advice, it is important that he follow each one; the discontinuance of tobacco is, I am sure, one upon which we should insist emphatically. Parenthetically, the denicotinized cigarettes which are for sale on the market are not really denicotinized. There still remains in these products 50 or more per cent of the normal amount of nicotine.

The use of sedatives is a time honored method of treatment, particularly in those patients with neurogenic hypertension. Instead of the common 30 mg. dose, many patients tolerate large doses such as 0.1 gm. phenobarbital three to four times a day, without toxic symptoms of any sort. The blood pressure will show a beneficial response to this dosage when smaller amounts seem to make no difference at all.

The vasodilator group of drugs should be given adequate trial, but in general these substances are rather disappointing.

Of late the dietary treatment of hypertension has been in the foreground again, both in the medical and lay literature. The weight reduction regime for obese hypertensives is a well established procedure and one which leads to considerable improvement in many instances. It should always be prescribed when indicated. Next come the more special diets, of which there are many. Perhaps the best known is that of Kempner at Duke University, who for a number of years has advocated the use of his "rice diet." The Kempner diet is not strictly a hypertension diet, but a diet meant for decompensated kidneys which are so injured that they cannot excrete properly the catabolic products of animal proteins. Kempner has substituted vegetable proteins for these in his diet which consists essentially of rice, sugar, fruit, and fruit juices, with an addition of vitamins and iron. The monotony and great restriction of the diet militate against its prolonged use. As yet no truly critical analysis of the various aspects of this diet has been published.

The very low sodium diet which has been used recently appears promising, but is still *sub judice*. The old low protein diet which was current many

years ago and which is still used empirically by some physicians for all types of hypertension, has been completely discarded as such in modern therapeutics. Certain types of kidney disease such as glomerulonephritis may indicate protein restriction, and certain diseases with associated edema such as heart disease with failure may require salt restriction, but dietary restriction as such should not be lightly undertaken because of the inconvenience to the patient and his family.

The use of kidney extracts has fallen far short of the anticipated benefit and is not practical for general use at this time. Large amounts of vitamin A have also been recommended but the results have not been confirmed. Rutin, a new and harmless drug, a derivative related to those substances found in citrin, may be of benefit in conditions where the capillary permeability has been increased, but is not of benefit in hypertension per se. The dosage is about 20-40 mg. three times a day.

Thiocyanates may be of value in a fair percentage of patients. The important thing is a frequent check on the blood level of the drug, which may vary tremendously in different patients. In some patients it may take eight times as much of the drug to arrive at and maintain a satisfactory blood level as it takes in others. The desired blood level is 6 to 12 mg. of thiocyanate per hundred cc. of blood. A simple test may be performed with a small set marketed by Lilly. It is easy, quick, and inexpensive. Thiocyanates are supplied in 0.2 gm. pills of the sodium or potassium salts or in the elixir. The dosage has to be changed successively each week according to the blood thiocyanate level. At the end of three to four weeks the dose is usually well stabilized. After this the patient is asked to come back every four to six weeks for control blood determinations. It is very important not to let the patient have a thiocyanate prescription which he can renew. Always write on the prescription, "Do not refill," so that he will not get himself into trouble. Barker believed that more than 50 per cent of patients will have reduction in blood pressure, and that all will have reduction in symptoms, with adequate thiocyanate levels. It has also been noted that some patients unsuccessfully treated with sympathectomy may respond to thiocyanate postoperatively, even though before the operation thiocyanate had no effect on the blood pressure.

The toxic effects of the thiocyanates have been over-emphasized. Occasional effects, such as lack of appetite, nausea, dizziness and the like often disappear with continued use of the drug and are seldom the cause for stopping it altogether. Symptoms like dermatitis may go away with continued use, but it is always wiser to stop use of the drug until the rash has disappeared. Resumption of the drug often causes no further dermatitis.

Tetraethyl ammonium is a drug which has caused a great deal of interest. Essentially, it produces a blockade of the autonomic nervous system, an effect similar to total sympathectomy. Sometimes, though

rarely, it produces miraculous relief for a period of hours or days in patients with intractable hypertensive headaches.

**DR. DANIELS:** There are some types of hypertension which are specifically curable by a surgical approach. Certain tumors of endocrine origin yield brilliantly to operative treatment. In unilateral kidney disease one takes out the diseased kidney and also performs an adequate sympathectomy on that side; then, should the results of nephrectomy be disappointing, one-half of the operation of sympathectomy for relief of essential hypertension is already accomplished. This procedure adds little to the risk of the operation of nephrectomy.

Coarctation of the aorta may be treated surgically. This operation has been done a number of times, and quite successfully. However, it should be an operation for youth, and the patient who is 30, 35 or 40 probably is a poor operative risk. In the older age groups there are arteriosclerotic changes that have taken place in the proximal portion of the aorta so that it is difficult to get a firm suture line when one does an end to end anastomosis.

Intracranial tumors may present themselves with a picture of hypertension. It is important to remember that brain tumor can give all the symptoms of malignant hypertension.

The surgical attack on essential hypertension has been going on since 1923 when Kraus suggested that sympathectomy might release the tone of the blood vessels and reduce hypertension. It was first tried out on a small scale by merely stripping the femoral arteries. That was unsuccessful, as we might expect it to be in the light of our present knowledge. Pieri in 1927 was the first to do a splanchnic resection, but he did it only on one side. A unilateral splanchnic resection is useless as far as this disease is concerned. In 1930 Adson did a laminectomy from the fourth thoracic to the second lumbar segment with section of the nerve roots. The mortality rate was high and the operation was abandoned. In 1932 Craig sectioned the splanchnic nerve below the diaphragm. In 1935 Peet first performed his procedure. About 1940 Smithwick became convinced that a more radical approach to the problem was necessary. He devised the so-called thoraco-lumbar sympathectomy in which he approached the nerves from above and below the diaphragm, and removed the ganglia from the eighth thoracic to the second lumbar segments, and most of the splanchnic nerves. He has reported much better results by this more extensive sympathectomy. Since then, Grimson at Duke has even gone further: he removes from the fourth ganglion down to and including the third and at times even the fourth lumbar ganglion as well as the splanchnic nerve trunks. Each operator, then, has his own operation. They differ so greatly in magnitude that the statistics of each are hard to compare.

We classify our essential hypertensives into four groups. Group I shows only arteriolar constrict-

tion in the eye grounds. Group II shows tortuosity and nicking of the veins, Group III shows the presence of retinitis with or without hemorrhage or exudate. Group IV is the so-called malignant type of hypertension with papilledema. If one divides cases of hypertension on this basis, one will find the following correlation with the clinical history. In Group I are the early cases, which generally respond well to rest and sedatives. In Group II are those with an established hypertension. They do not do so well on rest. Their tension may fall, but not to normal. They have a history of hypertension of two, three or four years or more in duration. In Group III, we will find the hypertensives of long standing, many of whom are asymptomatic. The patients in Group IV may have had hypertension only a short while. We have seen one patient who had no evidence of hypertension nine months before an examination showed malignant hypertension.

With this classification we are able to arrive at figures which give us some idea as to prognosis. In a series of cases treated medically and reported by Keith, Wagner and Barker the fatality rate at the end of four years was 30 per cent in Group I, 42 per cent in Group II, 78 per cent in Group III and 98 per cent in Group IV. In a series treated surgically by Smithwick and others the fatality rate after four years or more was 0 to 10 per cent in Group I, 10 to 25 per cent in Group II, 60 to 80 per cent in Group III and 75 per cent in Group IV. The fact that 25 per cent of the patients with malignant hypertension were alive and well after a period of at least four years' observation is significant, when under a medical regime only 2 per cent survived. Peet has one patient who is perfectly well 12 years after sympathectomy for malignant hypertension.

Bilateral kidney disease is a serious complication and probably is a contraindication to sympathectomy. Smithwick found that in those patients with bilateral kidney disease he had only 12 per cent good results in all groups of hypertension as contrasted to over 65 per cent good results in the patients without any kidney disease.

The patient selected for operation must not be too old. Smithwick recommends that the patients should be in their forties or younger. Peet operated on a patient 63 years of age. In our own series, 51 has been the oldest, but if the chronological and physiological age is somewhere around 45, we feel that the patient qualifies in this respect for sympathectomy.

What happens postoperatively to these patients? First and foremost, they have pain. They have more pain than after any other surgical procedure that I know of; and it is a difficult pain to relieve. It is present for a varying period of time. We had one patient who went back to work one month after a bilateral sympathectomy, and we have had other patients who took six months before returning to work.

The next thing that happens is the development of postural hypotension. These patients may have a high blood pressure while in a supine position. The

systolic pressure may be 200, but on standing up it may drop as low as 60, and you can imagine the effect that this has upon the organism as a whole. There is tachycardia, weakness, and even fainting. The instant these patients assume a horizontal position again, these symptoms disappear. This postural hypotension may last for a period of a few weeks to a year or more. It can be relieved in several ways. One is to tilt the patient's bed a little so that his head is up and his feet are down as he sleeps. A second is to apply a tight binder to the abdomen and legs.

Some patients develop an effort hypotension. When the average person with normal tension works, his blood pressure may remain constant or it may rise. If the patient with hypertension exerts himself, the blood pressure rises appreciably. In patients who have had an adequate sympathectomy, the reverse follows; upon effort, the arterial tension drops. With rest and quiet the tension tends to rise. We feel it is important for patients who have had the

operative procedure to get up and around, thus reducing their tension.

A most important postoperative effect is the relief of symptoms such as headache, tension, nervousness and palpitation. This may be striking even when the arterial tension is not materially lowered.

A postoperative effect to speculate upon is: What will happen to these patients if they get a visceral disease, such as appendicitis or a peptic ulcer? Will sympathectomy interfere with pain sensations that might be conveyed early in the normal person with such a disease? We do not yet have a sufficient number of patients who have developed such complications to give us a definite answer.

We do our operation transthoracically, resecting the ninth rib. We open the diaphragm wide so that we can explore the kidney and adrenal gland and we are able to expose without difficulty the sympathetic chain from the fourth thoracic down to the third lumbar ganglion and remove this entire chain and the splanchnic nerves.



**California Cancer Commission Studies\***  
**Chapter XIV**

## Cancer of the Larynx

SIMON JESBERG, M.D., *Los Angeles*

OF all the malignant neoplastic diseases to which the human body may be host, intrinsic cancer of the larynx is exceeded only by skin cancer in its chance of cure. Early diagnosis and efficient treatment are readily available. There is no internal region of the body where cancer makes known its presence as early as in the larynx, (hoarseness, dysphonia). The site of origin of the malignant new growth is generally within the larynx where it is confined for a relatively long time; extension to the cervical lymph nodes and perilyngeal structures is a late event. Here, then, is a situation in which there is an unusually favorable opportunity for successful treatment.

### INCIDENCE

About 4 per cent of cancers in man arise in the larynx. Cancer of the larynx can occur at any age, but the greatest incidence is in the fifth and sixth decades. Males are affected about ten times more frequently than females, but in the last few decades the incidence in women seems to be increasing. There is one form of laryngeal cancer that for some unknown reason occurs about seven times more frequently in the female. This is the postcricoid cancer which arises from the posterior surface of the cricoid area.

### ETIOLOGY

While the causes of malignant growth are not yet known, there are certain factors that seem to induce its occurrence in the larynx. Abuse of vocal cords, tobacco smoking, alcohol, and chronic laryngitis from whatever cause seem to be exciting factors. Heredity apparently plays a minor role in the development of laryngeal cancer. Leukoplakia and hyperkeratosis have been known to metamorphose into cancer.

### PATHOLOGY

By far the greatest majority of malignant tumors of the larynx are of epithelial origin, and Jackson and Jackson state that 93 per cent are epidermoid or squamous cell carcinoma. Basal cell carcinoma and adenocarcinoma are occasionally found, and mesothelial malignant tumors such as fibrosarcoma, osteosarcoma, chondrosarcoma, endothelioma, and the various type of malignant lymphoma are also occasionally encountered. We need consider here only the epidermoid carcinoma which, according to Broders, may be classified into four degrees of malignancy. In the lower degrees of malignancy the neoplastic cells are more uniform in size and the nuclei tend to be small; there may be considerable fibrous stroma in the tumor, the percentage of kera-

tin is high, and pearl formation is noted. In the higher degrees of malignancy, there is greater variation in size and shape of cells, the nuclei are larger, there is much less stroma to the tumor, and mitotic figures frequently may be seen.

The type of carcinoma is determined by the nature of the epithelium at the site of origin and the characteristics of its construction will follow the type of the parent cell. Thus laryngeal cancers generally fall into one of two categories. The first are of a low grade malignancy and most frequently arise from the squamous epithelium of the true vocal cords. These grow slowly, are for a long time localized, and extend to regional lymph nodes only late in the disease. This type was formerly thought to be radioresistant.\* The cancers of high grade malignancy usually are of extra cordal origin and spring from columnar epithelium. These are more rapid in growth and are usually more radiosensitive, but the prognosis is poorer. They are also much less amenable to surgical treatment.

The gross pathologic changes of laryngeal cancer have long been a somewhat confused subject. In laryngeal parlance, the terms intrinsic and extrinsic have long been in use although they do not give very exact information as to the site of the cancer. Intrinsic lesions are those confined within the larynx from the laryngeal introitus to the subglottic region (Figure 1). Extrinsic lesions are those involving the epiglottis, aryepiglottic folds, arytenoids, pyriform sinuses or postcricoid area (Figure 2). For clinical purposes perhaps it would be more practical to refer to "cordal cancer" and "extra cordal cancer." Approximately 85 per cent of the laryngeal cancers arise from the squamous epithelium of the true vocal cords and produce the symptom of hoarseness at an early stage. In the main, these tumors tend to be of low grade malignancy. The neoplastic process slowly extends along the cord longitudinally and may cross over the anterior commissure to the opposite cord. The process also extends through the muscles and tendons of the cord toward the laryngeal cartilages until the cord is fixed in a state of immotility. From here the tumor may extend to the cartilages and through them, subglottically and break through the cricothyroid membrane, or anteriorly and upward and invade the pre-epiglottic space. The lymphatic drainage system from the inside of the larynx to the neck is poor, and most of the lymph radicals exit through one small opening in the cricothyroid membrane.

Tumors arising within the larynx from sites other than the true cords (false cords, ventricles, inter-

\* Organized by the Editorial Committee of the California Cancer Commission.

\* See treatment.

arytenoid space) arise from columnar and not squamous epithelium. They tend to be of a higher grade of malignancy and to spread much faster. The symptom of *hoarseness* may not be produced at once. Tumors arising on the epiglottis, aryepiglottic folds, arytenoids and pyriform sinuses are usually of a higher grade of malignancy also. The initial symptoms of all the extra cordal lesions are less obvious and harder to associate with laryngeal disease than is hoarseness, but there is usually *severe pain located in the throat, a pain referred to the ear, a lump in the throat, or disturbance in swallowing*. Even in extra cordal lesions hoarseness eventually develops, but not until the tumor has had a chance to get a good start. *Blood spitting* may be a symptom and as extrinsic lesions proliferate, fatal hemorrhage may occur. Lesions within the larynx, if allowed to proliferate without treatment, will gradually close off the airway and there will be a slowly progressive difficulty in breathing with an inspiratory prolongation of the respiratory cycle and with tracheotomy or suffocation in the offing.

#### DIAGNOSIS

*Hoarseness or dysphonia is a constant and early symptom of cordal cancer.* Persistent hoarseness at any age should be viewed with suspicion. It calls for complete laryngeal examination. Indirect or mirror examination is so easily done that it should always be a part of a routine throat examination. Direct laryngoscopy must be done if for any reason the indirect method is not satisfactory. The final arbiter is biopsy with histological diagnosis. After a preliminary indirect examination has been made and the possible presence of a new growth determined, a specimen is removed by direct laryngoscopy with a small punch forceps. The tissue is examined in the laboratory and if a positive diagnosis is not made the biopsy should be repeated. The importance of early tissue examination can not be overemphasized, for on that depends the diagnosis. Also it is a factor in the selection of treatment.

#### TREATMENT

The objective of treatment is the complete removal or destruction of the cancer, with the patient left in a satisfactory physiological condition. The selection of the treatment must be governed by the site of the lesion, the extent of involvement, and the grade of malignancy. The methods of treatment are surgical operation, or irradiation, or a combination of both.

Irradiation treatment has been developed in the last 20 years to a high degree of efficiency, but of course it is of no value if the cancer is not radiosensitive. Highly malignant tumors which are usually of extra cordal origin are best treated by irradiation. The method generally used is the protracted fractional method originated by Coutard. If irradiation treatment does not make satisfactory progress surgical operation may be of value. In cases in which operation has been tried first and has failed, irradiation is usually tried, although it is seldom of much use. Because the choice too often rests with the patient and not with one who is competent to direct treatment, irradiation is often employed when surgical treatment would give a much better chance of cure.

For cancers of low grade malignancy, surgical treatment offers a good prognosis since these tumors remain local for a long time. Cordal cancer in which the cord is motile and the lesion is not too far anterior to involve the anterior commissure or too far posterior to involve the vocal process, is best treated by laryngofissure (thyrotomy). The true vocal cord and pericordal tissue, together with the inner perichondrium of the thyroid cartilage, is removed. This gives 80 per cent to 90 per cent five-year cures. The voice, while changed by this procedure, is generally good.

If the cord is fixed, then the cancer has infiltrated into deeper structures and possibly has invaded the cartilage. If the cord has only recently become fixed and if the lesion appears confined to the cord within the larynx, laryngofissure with removal of the un-



Fig. 1.

Cordal Cancer



Fig. 2.

Extracordal Cancer

derlying thyroid cartilage is done. Total laryngectomy is the operation of choice if the cancer has extended beyond the confines of the true cord, either above, below, or to the opposite side. Laryngectomy will give about 60 per cent five-year cures in such cases. Successful laryngectomy leaves the patient much less handicapped than is generally supposed. He can enjoy life and although he has lost normal speech he can learn a new method of talking either with an esophageal voice or by using an artificial larynx.

\* See note by Editorial Committee.

#### SUMMARY

1. Persistent hoarseness, laryngeal pain, or changes in the voice which cannot be accounted for at any age should be viewed with suspicion and early laryngeal examination should be made.
2. Early biopsy and tissue examination is essential in diagnosis and the selection of treatment.
3. The choice of treatment should be governed by the site of the lesion, extent of involvement, and the grade of malignancy.
4. The treatment should be individualized.

500 South Lucas Avenue.

#### \* Comment by Editorial Committee:

It used to be thought that in the larynx, surgical operation and radiation therapy complemented one another. It was believed that intrinsic lesions must be attacked surgically since they were probably radioresistant, while extrinsic lesions, presenting a much poorer surgical prognosis, were radiosensitive. Experience since has shown that instead of being complementary, surgical and radiation therapy are parallel weapons. It is recognized that radiosensitivity and radiocurability are not synonymous, and, further, that degree of cell differentiation is only a very rough index of either, particularly since the same tumor may show areas of different grade and only a tiny sample is obtainable for biopsy.

All factors must be evaluated in each case in planning treatment. The decision has become harder since it has been demonstrated that in early cordal lesions and 85 per cent "cure" rate, without voice impairment, has been achieved by irradiation. Conversely, the poor roentgen salvage of the extrinsic lesions may possibly be bettered by radical surgical removal (total laryngectomy).

There is a growing trend toward applying a therapeutic trial of complete irradiation, to be followed later by surgery if response is poor. The increase in the surgical difficulties secondary to irradiation is largely mythical. A more weighty objection is the loss of time and increased discomfort in cases of radiation failure.

## Chapter XVI

# Carcinoma of the Lung

JOHN C. JONES, M.D., Los Angeles

**C**ARCINOMA of the lung is found in 10 per cent of men with cancer coming to autopsy; it is second in incidence to carcinoma of the stomach. The development of a safe surgical technique for total pneumonectomy has far surpassed clinical advances for the earlier diagnosis of this lesion. The low surgical mortality attending such operations should be a vital stimulus to all physicians to make an early diagnosis of a common disease which can be cured only by surgical extirpation.

According to reliable statistics, the actual incidence of the disease is on the increase. As with other carcinoma, the cases occur in greatest number in patients between the ages of 40 and 60 years, and there seems to be a slightly greater incidence in the right lung than in the left. It is more common in males, the ratio of incidence being four to one, with some physicians reporting a ratio as high as eight to one.

#### SYMPTOMS

The symptoms are essentially the same as those of inflammation. Variations depend on the location and size of the tumor and the degree of obstruction and

ulceration of the bronchus. The vast majority of the patients complain of *cough as the earliest symptom*. Frequently they volunteer that they have a dry "cigarette cough" which later usually becomes productive of mucoid sputum. As the lumen of the bronchus becomes obstructed, the retained secretions become infected and the cough yields purulent sputum.

*Chills and fever* are an indication of the retention of infected secretions, and an erroneous diagnosis of pneumonia, pneumonitis or influenza is frequently made.

*Wheezing*, at first intermittent, sometimes becoming constant for a while and then suddenly disappearing with complete occlusion of a bronchus by the tumor, is a common complaint. This sequence of development is usually elicited by carefully questioning the patient.

*Pain* is a very common symptom, varying from a discomfort, or a feeling of tightness or oppression, or a characteristic pleuritic pain of varying degree, to the severe intractable pain due to the tumor invasion of the brachial plexus or the intercostal nerves. Severe pain is usually indicative of mediastinal,

pleural or chest wall involvement, and of inoperability.

*Hemoptysis* occurs in more than half of the patients. There is nothing characteristic about it. It may range from slight or occasional streaking all the way to fatal hemorrhage. Bleeding is frequently in direct ratio to the amount of infection and ulceration. Tumors arising far out in the bronchial tree become infected later than those arising in major and secondary bronchi, and are less apt to cause hemoptysis. It is not unusual for patients to deny raising blood, then on careful questioning to admit occasional blood streaks in mucoid sputum.

*Weight loss* is a rather constant complaint and, except in those patients with obvious metastases, is usually greater in the patients who have considerable infection complicating the tumor. Weight loss, then is not in itself an important indication in the consideration of operability.

*Dyspnea*, which occurs in about a fifth of the patients, may be due to atelectasis, but more commonly accompanies pleural effusions. The vast majority of effusions are indicative of extension to the pleura, but occasionally they are due to the secondary inflammation of the lung.

*Clubbing* of the fingers and toes may be observed early in the disease before any symptoms referable to the intrathoracic disease are present. It is seen frequently later in the course of the disease and is of no particular significance.

*Hoarseness* is occasionally noted as the first symptom, and it signifies inoperability because it means that the cancer has invaded the mediastinum to involve the recurrent laryngeal nerve.

Not unusually in a patient having no symptoms referable to the lungs and virtually no physical findings on examination, a routine roentgenogram will reveal a small pulmonary lesion which has already metastasized to the skeletal system, to the central nervous system, or to other organs. For this reason neurosurgeons have for a long time routinely ordered roentgenograms of the chests of all patients suspected of having a brain tumor.

Hoarseness; Horner's syndrome; phrenic nerve paralysis; intractable pain with involvement of the intercostal nerves or brachial plexus; cervical, axillary and supraclavicular metastatic lymph nodes—all these are of little significance in making an early diagnosis. They indicate only a state of inoperability.

#### PHYSICAL FINDINGS

The physical examination will yield findings varying according to the location and extent of the lesion and atelectasis, the extent of the infection, and the presence of metastases. Expansion of the hemithorax is usually decreased and there is a noticeable lag on respiration. Careful palpation for metastatic lymph nodes in the cervical, supraclavicular, and axillary areas is most important. Auscultation of the trachea with the stethoscope may reveal a wheezing respiration. Dullness on percussion with suppressed breath sounds over the involved area are common findings.

The presence of rales will depend on the degree of obstruction and the extent of the secondary infection.

#### DIAGNOSIS

Late diagnosis of carcinoma of the lung is due either to a patient's seeking medical advice long after the onset of symptoms, or to the physician's failure to recognize the importance of the patient's complaints and of carrying out the necessary diagnostic measures. All too often, carcinoma masquerades under the erroneous diagnosis of atypical or virus pneumonia, and frequently the correct diagnosis is long delayed by the temporary clinical improvement in the patient in response to repeated sulfonamide and penicillin therapy. *It is most important to emphasize that clinical improvement following chemotherapy without a complete roentgenographically confirmed clearing of the broncho-pulmonary lesion in an adult is indicative of at least a tentative diagnosis of primary bronchogenic new growth until proved otherwise.*

The sputum should be examined for tubercle bacilli and a search should be made for tumor cells.

*Roentgenography* is the greatest single diagnostic aid. It suggests the diagnosis in a vast majority of cases. The tumor itself may cast the entire shadow where the lesion is peripheral—that is to say, arising far out in the bronchial tree. A tumor arising in a primary or a secondary bronchus, a so-called "central lesion," does not cast a distinct shadow of its own, but one of atelectasis. Finally, a third type of roentgen manifestation may be evidence due to bronchiectasis, abscess or pleural effusion secondary to the primary tumor. There are no characteristic roentgen features of bronchogenic carcinoma, for it may simulate all types of lesions, such as bronchiectasis, tuberculosis, lung abscess, lymphoblastoma, benign tumor, pneumonia and pleural effusion. Careful fluoroscopy and lateral and oblique roentgenograms are frequently necessary diagnostic aids. Only in certain cases is bronchography indicated, namely those in which the tumor is small and bronchoscopy has not aided in the diagnosis. Then a filling defect is searched for by outlining the bronchus with lipiodol. The injudicious use of bronchograms not infrequently flares up an acute pneumonitis in cases in which the infection is present with retained secretions. Far more preferable are tomograms or planigrams, which have proved of great aid where the lesions were well beyond the vision of the bronchoscope and biopsy specimens were not available. Planigrams reveal partial or total bronchial obstruction characteristically inside the outline of the tumor shadow and are indicated where bronchoscopy yields no information.

*Bronchoscopy*, the next most important diagnostic aid, is the easiest, most accurate method of early diagnosis. A biopsy specimen is obtainable in about 50 per cent of the cases. Bronchoscopy may yield important information, such as a showing of narrowing and fixation of the bronchi, even though the tumor arises beyond the visual field of the bronchoscope and a biopsy specimen is not obtainable.

Operability may be determined at the time of bronchoscopy, and the retained infected secretions may be aspirated to improve the patient's condition for operation if surgical removal proves feasible.

Needle biopsy of the lung is mentioned only to condemn it. Hemorrhage, infection, and extension of the tumor along the needle track are serious complications contraindicating its use. Needle biopsy should be limited to peripheral tumors in patients in whom a diagnosis is most imperative and an exploration is to be avoided if possible.

In cases in which the history and the diagnostic measures indicate a presumptive diagnosis of carcinoma of the lung and positive tissue biopsy has not been obtained, exploratory thoracotomy is definitely indicated. The safety of the operation and its great advantages over the limitation of thoracoscopy far outweigh any advantages of the latter procedure as a diagnostic aid.

#### PATHOLOGY

It is now generally agreed that all cancer of the lung arises from bronchial mucosa and is of a high degree of malignancy. The bronchial and mediastinal lymph nodes are invaded early, and blood stream metastases to the brain, liver, adrenals and kidneys are common. The common types of primary carcinoma of the lung are (1) squamous cell carcinoma, (2) adenocarcinoma, (3) the small cell type "oat cell," and (4) the undifferentiated. The squamous cell carcinoma occurs more frequently than do the others. It apparently has a slower course and the incidence of metastases is lower. It is therefore a more favorable type as regards operability and offers the best prognosis from the standpoint of a surgical cure. The adenocarcinoma and undifferentiated carcinomas are much more rapid in their progress, have a higher incidence of metastasis and a much lower surgical operability, and therefore a poorer prognosis.

#### TREATMENT

*Total pneumonectomy with resection of the regional mediastinal, subcarinal and azygos lymph nodes is the only operation that offers a cure.* The incidence of recurrence following lobectomy is convincing evidence that pneumonectomy should be done where it is feasible. Exploratory thoracotomy with a view to proceeding with a pneumonectomy in cases not proved by biopsy is an entirely safe procedure.

Roentgen therapy at best offers the patient only

palliation in lesions that are radio-sensitive, and is reserved for the cases that are inoperable.

#### RESULTS

Approximately 60 per cent of cases are clinically inoperable because of metastases or other causes when they come to the surgeon, and about 40 per cent of those explored are surgically inoperable by virtue of extension of the lesion well beyond feasible surgical extirpation. The mortality from surgical exploration in the inoperable cases has been very low, and the surgical or hospital mortality in pneumonectomy is now reduced to about 4 per cent. The incidence of recurrence and metastasis in the cases in which operation is done varies from 35 to 65 per cent in the first two or three years, depending on the number of so-called "palliative pneumonectomies" the surgeon has included in his series, i.e., pneumonectomies where it was obvious that all the disease could not be eradicated but that the symptoms might be temporarily relieved by the extirpation. The total salvage in an unselected group of cases with carcinoma of the lung is still very low, and this presumably is due to the delay in the diagnosis.

#### SUMMARY

1. Only the early diagnosis and early resection can elevate the appallingly low operability and curability rate in cancer of the lung.
2. Innumerable patients have lost their only chance of a cure because of the loss of weeks or months while roentgen therapy was given and its effects studied.
3. The physician must not be lulled into a sense of security by the apparent clinical improvement as the result of chemotherapy (sulfonamides and penicillin) for a broncho-pulmonary lesion which cannot be shown by roentgenogram to be *entirely cleared*.
4. Carcinoma of the lung mimics inflammatory lesions both clinically and in roentgenograms, and the clinician must constantly keep it in mind if a lesion does not respond to the usually prescribed treatment.
5. A common and otherwise fatal disease which is curable surgically, with a low operative mortality and without deformity, is a challenge to the medical profession to make the diagnosis earlier.

*"Cancer of the Esophagus" by Dr. Brodie Stephens, Chapter XVII of the California Cancer Commission Studies, will appear in this section in the May issue of CALIFORNIA MEDICINE.*



# California M E D I C I N E

OWNED AND PUBLISHED BY THE CALIFORNIA MEDICAL ASSOCIATION  
450 SUTTER, SAN FRANCISCO 8      PHONE DOUGLAS 2-0062

*Editor, DWIGHT L. WILBUR, M.D.*

*Assistant to the Editor, ROBERT F. EDWARDS*

*Editorial Executive Committee*

LAMBERT B. COBLENTZ, M.D., San Francisco

ALBERT J. SCHOLL, M.D., Los Angeles

H. J. TEMPLETON, M.D., Oakland

For Information on Preparation of Manuscript, See Advertising Page 2

## EDITORIALS

### Drastic Therapies

The use of somatic treatment procedures in psychiatry is nothing new. Blood letting, purgatives and emetics, vaccines, endocrinological substances, fever production with malaria and typhoid, prolonged narcosis with sedatives, and surgical procedures like thyroidectomy and hysterectomy—all these have been utilized in the past. And they were considered as drastic as the methods now being widely used, such as insulin and the various electro-convulsive treatments. The term "shock" therapy is a misnomer. Physiological shock is not produced, and the treatment is not directed at frightening or "shocking" the symptoms out of the patients. To describe these methods, including the surgical approach known as frontal leukotomy, as "drastic therapies" may be accurate in that they are violent treatments which may act rapidly and dramatically. But this is not to their discredit, for psychotherapy itself may be even more violent in its onslaught on the psychological defenses of the individual.

The shock therapies—insulin, electro-shock and electronarcosis—are now being re-evaluated and revised in the light of long continued experience. There is overwhelming evidence that convulsive therapy materially shortens the majority of depressive episodes, in particular those severe depressions observed during the involutional period. The therapeutic effect is not so certain nor so dramatic in the manic attack. Such treatment is definitely not prophylactic, and it will not prevent recurrence.

The results of the electro-convulsive treatment of schizophrenia are not so certain. Dramatic results may be obtained in selected cases, but relapses are definitely more frequent than in the affective psychoses. Although it was first thought that the newer electronarcosis treatment of schizophrenia might offer better results than electro-shock therapy, continuing clinical experience does not confirm this

first impression. It is probable that electronarcosis offers little advantage over electro-shock, and that the therapeutic efficacy of each mode of treatment depends essentially on the production of a convulsion. In the treatment of the psychoneuroses, electro-convulsive therapy has been for the most part a failure, and too often it has been administered because the therapist has been frustrated in his psychotherapeutic efforts or because he has rationalized to himself that the patient will be more psychotherapeutically accessible if the "affective" components of the patient's illness are removed by the convulsive therapy. Since the patients in such cases usually do not need hospital care, many have been treated in office practice, sometimes indiscriminately and without the supervision needed in the period immediately following treatment. However, the therapy in general should not be condemned because it has been injudiciously applied in some cases. It has definite limitations, as does every other therapy in medicine. It is not a panacea. It is not without certain hazards and possible complications, such as vertebral fractures, which can be adequately controlled by appropriate measures in competent hands. Within these limitations electro-convulsive therapy is a powerful and efficacious tool in the therapeutic armamentarium of the psychiatrist.

Because of its simplicity and ease of administration, electro-shock therapy has tended to supplant the more complicated insulin hypoglycemic treatment, although there is considerable evidence that insulin therapy is more beneficial in the treatment of schizophrenia. With any treatment the relapse rate is high, particularly in schizophrenia. Shock therapy in any form can be looked upon as only one facet of a total psychiatric regime, and it should be considered only after a thorough study of the patient has been made.

No adequate theory of the mechanism of action, physiological or psychological, of shock therapy has as yet been formulated. The theory of a biological antagonism between epilepsy and schizophrenia, advocated by von Meduna, has not been substantiated, nor do the theories emphasizing the importance of an anoxia of the brain or stimulation of the sympathetic nervous system in producing therapeutic results serve as entirely satisfactory explanations. Psychological theories to the effect that the treatment acts as a threat to life which mobilizes all the patient's energies to return to reality, or that it acts as a medium by which the patient expiates his sense of guilt, may sound intriguing, but it is seldom that facts can be found to substantiate them. No one of these concepts is sufficient in itself to explain adequately the speed with which therapeutically dramatic results occur.

Surgical operation for the relief of mental symptoms has been practiced since ancient times. Even today the removal of the uterus and ovaries, or of the thyroid, is too often done for the relief of "nervousness." The operation of frontal lobotomy or leukotomy is, however, a more direct approach to the problem of amelioration of the symptoms of mental disease, and it is advocated with the neurophysiological rationalization that isolation of the prefrontal cortex by cutting the fiber connections between the thalamus and prefrontal cortex will cause psychopathologic ideas and feelings to lose their emotional potency and that in time these may even disappear. The procedure is still in a stage of development at which it should be considered only for those patients who are believed to be chronically ill, who have not

responded to other appropriate forms of therapy and who are not likely to recover in the future. These would include patients with chronic schizophrenia, chronic depressions, and long-standing severe obsessive compulsive symptoms which have not responded to psychotherapy and shock therapy and whose symptoms seriously interfere with the individual's social and occupational adjustment. Observation of patients who have undergone this operation leaves little doubt that destruction of areas considered to be the seat of the intellect can affect the personality greatly and the intellect very little. Defects do occur, especially at the level of imaginative and creative thinking, and although much of this loss is regained over a period of years, complete restitution is improbable. Apparently other association pathways take over the function of the cut fibers.

In making a decision about recommending frontal lobotomy for a patient, one must remember that one is introducing and superimposing an organic disease of the brain on a functional disorder. If that functional disorder is a chronic disabling or deteriorating one, and the symptoms resulting from leukotomy will be less handicapping than the functional disorder, therein lies the indication for operation if all other modes of therapy have failed. Any therapeutic means, limited though they may be, which can help to deal with the serious problems of mental disease, demand unbiased and unprejudiced appraisal. Each must be considered only as a part of a total psychiatric structure in which psychotherapy should be the cornerstone.



### Industrial Medical Fees

Heartening news for the medical profession came out of the Industrial Accident Commission of the State of California last month, when the Commission approved a surgical fee in excess of the minimum fee set forth in the official schedule. If this action may be considered a test case, the medical profession may confidently expect fair and impartial consideration by this important state body.

In the case recently decided, a surgeon was called upon, just as he was leaving a hospital, to examine an injured patient who had just been brought in. The patient was a workman who had fallen from a scaffold and was in a dangerous condition. The surgeon ordered a blood transfusion, called for two other specialists, a surgeon and a urologist, and did an exploratory laparotomy. When he located the injury in a kidney, he performed a nephrectomy via transperitoneal approach, followed up with more transfusions, and complete recovery resulted. Here was a definite life-saving procedure, performed in

emergency circumstances and resulting in a splendid recovery.

When the surgeon rendered his statement to the insurance carrier he was tendered a check for the minimum fee for nephrectomy, plus the attendant charges. He protested the small fee allowed, particularly in view of the difficulties and time consumed in the operation, only to be met with the statement that the fee schedule adopted by the Industrial Accident Commission set forth that particular fee for that particular procedure. On the advice of the California Medical Association and with its cooperation, the doctor filed a claim for the fee he had requested. A hearing was held by a referee and the Industrial Accident Commission granted the doctor the fee he had asked.

One of the startling aspects of this case was the claim of the medical director of the insurance carrier that the California Medical Association had been instrumental in drawing up the existing industrial

fee schedule and that the fee for a nephrectomy was clearly set forth. This medical director deliberately by-passed the fact that the present fee schedule lists all fees as minimum and provides that higher fees shall be warranted where unusual difficulties or time factors are involved. Further, he contended that the doctor had no complaint because he had received the case of an unknown patient in an emergency. To top it all off, when told that the life-saving nature of the case had probably saved the insurance carrier a \$6,000 death benefit, he stated that this was a problem for the claims department of the carrier and not the medical department. The overall picture of an injured workman, the potential loss of life and of money, and the duty of the insurance carrier to its beneficiaries and physicians alike, was left out of consideration.

In holding an impartial hearing in this case and in granting the physician's request for a fee higher than the minimum, the Industrial Accident Commission has recognized that a minimum fee does not necessarily represent a maximum. The Commission has also served notice on insurance carriers that the rights of physicians are to be protected under the

structure of the laws governing industrial accidents. Likewise, it has in effect notified all employed persons in California that the best in medical and surgical care is available to employees injured during the course of their employment, regardless of the cost of such care.

The California Medical Association worked for more than four years, often against tremendous odds, to secure the adoption of a more complete, more up to date, schedule of industrial fees by the Industrial Accident Commission. The Association has offered its services to its members who are subjected to chiseling tactics by employers or insurance carriers, and it has been able to effect payment of proper fees in various cases where deductions had been made by the employer or his agent. In reaching its recent decision, the Industrial Accident Commission has proved that it looks beyond the monetary interest of the insurance carrier and into the overall benefit of the injured workman and those who care for him. This is the spirit of the industrial compensation laws of the state and the medical profession may take cheer from the existence of a Commission with a firm conviction of its own obligations and authority and the courage of its convictions.



## EDITORIAL COMMENT

### BCG Vaccination

As BCG will probably be used soon in California among certain groups in the child population, it would seem pertinent to review certain aspects of this still debatable subject. It is of special interest to pediatricians, as they will be giving it, if it ever be universally adopted. It will be given in the age group with which pediatricians have to deal. If adopted on a voluntary basis, as it should be at first, they will either have to give it or give counsel to the parents as to the advisability of its acceptance. It will be their job to explain the failures, the complications of its use, the running sores which have often accompanied the vaccination, and any disaster, isolated or wholesale, following its use. It will be necessary to explain to the public, after years of careful education about the advantages of a tuberculin-negative child population, why we suddenly are aiming at exactly the opposite result.

Certain points are now generally accepted by all workers interested in BCG. First, it is harmless as now given and with the manufacture of the vaccine carefully controlled and limited. At present the danger of BCG inoculation may be said to be potential rather than immediate, as no deaths have occurred in the United States attributable to its use.

Secondly, its use is a poor substitute for the non-contact of children with tuberculous disease. Its use should in no way replace the intensive efforts to abolish contacts of

open cases of tuberculosis to susceptible individuals. In the most enthusiastic reports of the efficacy of BCG there are still records that some individuals so inoculated become victims of tuberculous disease. Thirdly, then the use of BCG should be restricted to tuberculin-negative groups in which the possibility of escaping contact, and therefore infection, is practically impossible. Suggested for this group would be the children of American Indian, oriental, negro, and Mexican parentage, or other groups living substandardly. To this group might be added children of parents already proved to have tuberculosis and returning to the home from sanatoria, and in an older age group, students in the medical sciences, and members of the armed forces going into oriental countries where morbidity from tuberculosis is high.

The debatable question is the efficacy of BCG as a prophylaxis against tuberculous infection. Review of voluminous international literature failed to reveal irrefutable evidence of the effectiveness of the vaccine, and the reports have not gained wide acceptance among pediatricians. Studies in Scandinavia and in South America suggest a relationship between vaccination and decreased incidence of the disease in children over a short period of time, but show no valid statistical proof of long-time benefits.

It is not enough during scientific studies on BCG to state that controls "live under similar conditions." The exact control methods should be stated and elaborated if authors expect

their results to be believed. Recent reports in America have been at fault in this regard. Taking as controls the groups in which the parents refuse the vaccination may lead to very erroneous conclusions, as was brought out by Levine and Sachett in their recent study. (*Am. Rev. Tuberc.*, 1946, 53:517.) It is indeed a pity that, with the enormous number of children who have now received BCG, the study made by Levine seems the only one properly reported on a scientific basis, with a use of alternate cases. From his study the efficacy of BCG can be very seriously questioned, Levine's control group showing practically the same incidence of disease as the inoculated group. Carefully controlled studies such as these naturally carry more weight with pediatricians in deciding on the use of BCG than those less carefully performed.

The question to ask ourselves is this: Are we willing to use a method of partial protection, the efficacy of which is still debatable 25 years after its first use, to possibly hasten the winning of a battle, the end of which may be in sight?

The ideal method of tuberculosis control is the finding and removal of possible contacts before infection to others has taken place. BCG is a poor substitute for this, and also by its use universally we would lose our most potent screen in finding cases. This point has not been much discussed in the literature. If any widespread use of BCG be accepted, it will immediately make useless the tuberculin test, the most valuable single item in the determination of the incidence of infection, and in the sifting of cases among the young for further study. It is one of the most accurate biological tests known, although it has suffered considerably from misinterpretation and belittling from those not using it to the same extent as pediatricians use it. Frequent surveys with the tuberculin test is still the best method of telling ourselves how we are doing with the job of tuberculosis eradication.

California, by nature of its various groups of child population, has an unusual opportunity for study of the efficacy of BCG. Its use should be limited to these groups already mentioned. It should be given experimentally, on a voluntary basis, and scrupulously controlled. If used, it should be understood as no substitute for removal of contact. If these conditions be met, pediatricians, and the medical profession in general, should and will give their cooperation. On this basis, the use of BCG would give us an experiment close at home, one which would help us decide for ourselves this much debated question. We are all prone to pay more attention to things we do ourselves. It is to be earnestly hoped that in at least one of the contemplated studies in California we will gain information about the efficacy of vaccination, and that the studies will not all become just "another project."

LLOYD B. DICKEY,  
Department of Pediatrics,  
Stanford University.

The attenuated, bile-treated culture of bovine tubercle bacilli known as BCG (Bacille-Calmette-Guerin) is receiving increased attention as an effective means of producing active immunity against tuberculosis. Recognizing this, anti-tuberculosis workers of the United States Public Health Service have been interested in developing a program for its use in the United States.

On September 7, 1946, a conference on BCG vaccination was called by the Tuberculosis Control Division of the USPHS at Bethesda, Maryland. Participating were many of the leaders of the anti-tuberculosis movement in the United States. As a result of this conference it was agreed that BCG vaccination confers increased resistance to tuberculosis,

that medical literature fails to reveal any proven case of progressive disease as a result of BCG vaccination and that BCG vaccination can be done without severe local reaction. The intracutaneous method of vaccination was recommended for use at present. In the studies presented at this conference, BCG vaccination converted a large percentage of non-reactors to the tuberculin test into reactors. The need for re-vaccination and the time interval between the vaccinations was not decided. It was recommended that a single laboratory be established for the Tuberculosis Control Division to produce BCG vaccine for the entire United States for use in research programs proposed at the conference. It was further proposed that extensive investigations should be carried on cooperatively with organized research groups throughout the nation, especially in population groups highly exposed to tuberculous infection. It was also recommended that the Tuberculosis Control Division set up a control study in a community with a population of 100,000 or more to determine immediate and long range results.

A second conference was called on March 8, 1948. In this conference Dr. Holm of Copenhagen reported that varied use of BCG vaccine was contemplated for the ensuing year in Europe. In all, ten countries are expected to be able to test and vaccinate the school children within the next 18 months. Dr. Holm is at present engaged in organizing vaccination teams to be sent out into various countries for the purpose of vaccinating as many as possible. Some fifteen million people are expected to be vaccinated under this plan.

Dr. Carroll Palmer of the USPHS pointed out that the situation in this country is different from that in Europe. Whereas in Europe the vaccination of entire populations may be quite justified, it would seem advisable in the United States to limit vaccination to selected groups and to use as many control series as possible.

Recently BCG vaccine programs have been developed by the New York State Department of Health, Herman Hilleboe, M.D., Commissioner, and released jointly by the New York State Department of Health and the Medical Society of the State of New York. This is based upon the assumption that "BCG vaccination is one of the known methods of reducing morbidity and mortality rates from tuberculosis and at present is the only known practical method of inducing specific resistance to tuberculosis." It has, therefore, been recommended for use in three selected groups:

1. In groups of occupational exposure to tubercle bacilli, such as nurses, medical students and hospital personnel.
2. In population groups with high tuberculosis morbidity and mortality rates.
3. Where there has been a known exposure to tuberculosis or where an exposure is likely to occur as in the households of patients returning from hospitals and sanatoria.

Objection has been raised chiefly on the part of the pediatricians, who apparently feel that the conversion of non-reactors to tuberculin to reactors, even by the use of an avirulent bovine culture, would handicap them in their attempts to diagnose clinical tuberculosis in children. If the program called for the wholesale immunization of the entire school population, this objection might be valid. However, since it is contemplated to limit the use of BCG vaccine strictly to high incidence areas and contacts who are still negative, it seems likely that the pediatricians would not find their problem in this regard a serious matter.

Use of BCG vaccine is of course only one factor in the battle against tuberculosis. It is perhaps a relatively minor one, yet the final, virtual elimination of this disease will come about in the reasonably near future only through the use of every known method of tuberculosis control.

SIDNEY J. SHIPMAN, M.D.,  
San Francisco,  
March 15, 1948.

# CALIFORNIA MEDICAL ASSOCIATION

---

JOHN W. CLINE, M.D.....	President	EDWIN L. BRUCK, M.D.....	Council Chairman
E. VINCENT ASKEY, M.D.....	President-Elect	L. HENRY GARLAND, M.D.....	Secretary-Treasurer
LEWIS A. ALESEN, M.D.....	Speaker	SIDNEY J. SHIPMAN, M.D.....	Chairman, Executive Committee
DONALD A. CHARNOCK, M.D.....	Vice-Speaker	DWIGHT L. WILBUR, M.D.....	Editor
JOHN HUNTON.....		Executive Secretary	

---

## **NOTICES AND REPORTS**

### **Council Action on Rebates**

At its meeting of February 21-22, 1948, the Council of the California Medical Association received an open letter which was addressed to it and to the Council of the Los Angeles County Medical Association by the Los Angeles Radiological Society, a unit of the Los Angeles County Medical Association. The Council of the C.M.A., after due consideration, voted unanimously that this letter should be published, as requested, and that a further note should be added to it, to indicate the actions already taken by the official Councils of both the California Medical Association and the Los Angeles County Medical Association.

The letter from the Los Angeles Radiological Society follows:

#### **AN OPEN LETTER TO THE COUNCIL OF THE L.A.C.M.A. AND THE C.M.A.**

Members of our Section have regretted as much as anyone the publicity necessary to abolish secret rebating. To this group, which has been working continuously against such discreditable practices for more than 20 years, it seems regrettable that some County Medical members seem more interested in seeking out someone to criticize for the publicity than in cooperating in the attempt to eradicate the evil which caused it.

Although some of the criticism has been a matter of self interest, there are a good many who state that "something" should have been done by "somebody" by "some other method" to end these disreputable practices. Unfortunately, with medical government as with civil government, many of our most reputable citizens follow the path of least resistance and leave the work to others. Those who do not realize that every available means has been tried over the years by numerous groups and individuals to get rebating abolished without the use of outside help are entitled to know some of the facts of life pertaining to medical government so that such conditions will not again arise.

The recent anti-rebating resolution of the Council

of the Los Angeles County Medical Association is an excellent step but previous resolutions have failed because their effort has been nullified by pressure groups and because our by-laws contain no effective machinery for discipline. Although we often admit 50 to 60 members at a time, only a handful have been expelled for breaches of discipline during the last decade—a fact which is well known to those who travel on the borderline.

Those of us in a position to see the sad results to the public of the x-ray rebating groups—none of which are operated by certified radiologists, and many of which are operated purely as a business venture by laymen—are particularly anxious to see effective legislation in the A.M.A. and its component parts as well as in the legislature to end all rebating schemes once and for all. The "once-over-lightly" examination offered by such groups means undiagnosed early cancers, diagnoses of tuberculosis which never existed, with monthly chest check-up examinations being recommended, and as many as 52 x-ray treatments for unsuitable diseases such as varicose veins with resultant permanent skin damage. These examples are but a few of the tragic results to the patient which occur when medicine is regarded as a commercial enterprise to be driven as a trade instead of practiced as a profession.

Efforts to improve the future must necessarily take into account the failures of the past. In fairness to the facts several powerful influences must be mentioned. One large laboratory which has recently denounced rebating and has simultaneously reduced its fee schedule by 25 per cent, has for many years, as now—which reference to the Los Angeles County Medical Bulletin will show—had at least one member of its "Advisory Board" on the Council of the Los Angeles County Medical Association.

No matter how conscientious some members of the Los Angeles County Council have been, or how well intended their countless resolutions in the past, strong but unrelenting pressure from a minority has rendered attempts to abolish rebating ineffective.

Similar tactics by an interested minority—a coalition of rebaters who hired a lobbyist—effectively killed in committee an anti-rebating bill which was before the Legislature last spring.

It is not to be wondered that after six years of attempting to work with the Los Angeles County Council, including some four conferences during 1947, plus having legislation defeated as noted above, the manager of the Better Business Bureau became discouraged.

When last month after 24 members preferred formal charges of rebating against another member, the present newly-elected County Council took upon itself the authority to suppress the charges without a trial, the Better Business Bureau seemed to have decided that only the weight of public opinion would force a change. It certainly did!

This very same Council within less than two weeks developed what was described editorially in the County Bulletin as sufficient "intestinal fortitude" to pass a suitable resolution with "teeth in it."

We point out the mistakes of the past so that they may be avoided in the future. We are much more interested in having a satisfactory procedure developed to make sure that the "teeth" are of the permanent and not the deciduous variety. We believe that the present resolution is likely to be no more effective than the previous ones unless supplemented by workable machinery for discipline. To this end we respectfully suggest:

1. A grievance committee as recommended in the Rich Report. This study, made at the request of the A.M.A. and some of the state societies, pointed out that the very worst public relations were promoted by the "erring brothers" in the medical profession. It suggests a grievance committee to be composed of doctors who would investigate and press charges preferred from within or without the Society.

2. The County Society Council should be denied the right—so recently exercised by the present Council—of suppressing formal charges without trial. The right of appeal to the C.M.A. and the A.M.A. should be granted to anyone.

3. To restore public confidence, the County Council should make a clear statement of policy to the effect that patients will be expected to pay for services to the individual who renders them. Laboratories or doctors should not act as collection agencies for others.

Such systems of credits and accounts have resulted in abuses in the past. Already one laboratory which has renounced rebating offers to charge 25 per cent less if the patient does not come to the laboratory. With x-ray work this is patently ridiculous. Other similar institutions invite doctors to establish "charge accounts" for x-ray and clinical laboratory

work and furnish a schedule, apparently for display to the patient, from which the doctor is told he can deduct 25 per cent. Such practices open both the doctor and laboratory to the suspicion of the public that secret rebating still exists, and perhaps not without reason, for in the past credits and charge accounts have served as ruses for rebating. Such practices should be promptly outlawed by the Council.

We would greatly appreciate your publishing this letter in the organ of your organization.

Executive Committee

LOS ANGELES RADIOLOGICAL SOCIETY

ROY L. FIELDER, M.D., *President*

MORIS HORWITZ, M.D., *Secretary*

WILBUR BAILEY, M.D., *Treasurer*

WYBREN HIEMSTRA, M.D.

DONALD LAING, M.D.

1 1 1

### Resolutions on Rebates

The Council of the California Medical Association also wishes to call to the attention of all members two paragraphs in the resolution adopted by the C.M.A. Council on December 21, 1947, these paragraphs reading as follows:

"In its continued efforts to protect the public, the California Medical Association serves emphatic notice that it is both unjust and a violation of medical ethics for doctors to receive rebates of any portion of fees or costs of medical appliances, drugs, eye glasses, x-ray and laboratory procedures which have been prescribed or recommended by them; it is equally unethical for physicians to give or to participate in rebates of fees.

"The public should be advised that an ethical doctor bills his patients directly for his services and cannot receive other recompense under any guise whatever."

The resolution adopted by the Council of the Los Angeles County Medical Association in a special meeting held January 15, 1948, reads as follows:

"*Be It Resolved:* That any physician who accepts a rebate is guilty of unethical conduct and such conduct is incompatible with membership in the Los Angeles County Medical Association.

"As the term 'rebate' is used herein, it means money, credits, or anything of value, which is received, directly or indirectly, in any guise whatever, by the referring physician from any person, partnership, or corporation, profit, non-profit, or cooperative, to whom a patient or any person is referred or sent for medical or laboratory services, or for medical or professional device, equipment, materials, or supplies."



## Council Meeting Minutes

*Tentative Draft: Minutes of the 348th Meeting of the Council of the California Medical Association, Los Angeles, February 21-22, 1948.*

The meeting was called to order by Chairman Bruck at 10:00 a.m., Saturday, February 21, 1948, in Conference Room No. 6 of the Biltmore Hotel, Los Angeles.

### 1. Roll Call:

Present were President Cline, President-Elect Askey, Speaker Alesen, Vice-Speaker Charnock, Council Chairman Bruck and Councilors Shipman, Ball, Crane, Henderson, Anderson, Kneeshaw, Lum, MacDonald, Green, Cherry, MacLean, Hoffman, Bailey and Thompson. Councilors absent: none. Councilors ex-officio absent, Secretary Garland and Editor Wilbur (illness).

Present by invitation were Executive Secretary Hunton; Legal Counsel Hassard; Assistant Executive Secretary Wheeler; Public Relations Counsel Whitaker; Ben H. Read, Executive Secretary of the Public Health League of California; Mr. Ed Clancy, assistant to Mr. Whitaker; and county society executive secretaries Kihm of San Francisco, Venables of Kern, Waterson of Alameda and Donovan of Santa Clara. Present by invitation during part of the meeting were Dr. C. L. Cooley and Mr. W. M. Bowman, Secretary and Executive Director of California Physicians' Service and Drs. Donald Cass and J. F. Doughty, members of the Board of Trustees of C.P.S.

### 2. Approval of Minutes:

(a) On motion duly made and seconded, minutes of the 206th meeting of the Executive Committee, held January 13, 1948, were approved.

(b) On motion duly made and seconded, minutes of the 207th meeting of the Executive Committee, held January 18, 1948, were approved.

(c) On motion duly made and seconded, minutes of the 347th meeting of the Council, held December 20-21, 1947, were approved.

### 3. Membership:

(a) A report showing 3,735 dues-paid active members as of February 20, 1948, was received.

(b) On motion duly made and seconded, one member whose 1947 dues had been received since the last Council meeting was ordered reinstated as an active member.

(c) On motion duly made and seconded in each instance, the following eleven nominees were elected as Associate members:

Ellen Brown, Alameda County.  
Wallace M. Chapman, Alameda County.  
Virginia L. Cull, Alameda County.  
Edwin H. Lennette, Alameda County.  
Julius J. Simon, Alameda County.  
Martin L. Stephenson, Alameda County.  
Herbert R. Stolz, Alameda County.

G. Otis Whitecotton, Alameda County.

F. H. Garrett, Ventura County.

R. F. Scherb, Ventura County.

W. E. Whalen, Ventura County.

(d) On motion duly made and seconded in each instance, the following twenty members were elected to Retired Membership:

Henry Wahle, Alameda County.

Lewis H. Athon, Los Angeles County.

John R. Buckingham, Los Angeles County.

H. C. Bumpus, Los Angeles County.

Lucius W. Case, Los Angeles County.

Herbert T. Cox, Los Angeles County.

John B. Dooley, Los Angeles County.

George O. Gordon, Los Angeles County.

Charles H. Gowan, Los Angeles County.

Henry B. Lemere, Los Angeles County.

A. L. MacLennan, Los Angeles County.

Carl H. Parker, Los Angeles County.

Edward N. Reed, Los Angeles County.

J. M. Wheelis, Los Angeles County.

J. M. Burlew, Orange County.

Lloyd A. Burrows, Orange County.

Alfred Shryock, San Bernardino County.

Alfred L. Phillips, Santa Cruz County.

George A. Broughton, Ventura County.

J. A. Mahan, Ventura County.

(e) A motion was duly made and seconded that Harold Behneman of Riverside County be elected to Life Membership. Motion lost. No affirmative votes.

A motion was duly made and seconded that Elmer Belt of Los Angeles County be elected to Life Membership. Motion lost. No affirmative votes.

A motion was duly made and seconded that F. E. Blaisdell of Santa Cruz County be elected to Life Membership. Motion lost. No affirmative votes.

On motion duly made and seconded, William A. Boyce of Los Angeles County was elected to Life Membership.

A motion was duly made and seconded that Edwin F. Boyd of Los Angeles County be elected to Life Membership. Motion lost. No affirmative votes.

On motion duly made and seconded, John MacKenzie Brown of Los Angeles County was elected to Life Membership.

A motion was duly made and seconded that O. W. Butler of Los Angeles County be elected to Life Membership. Motion lost. No affirmative votes.

On motion duly made and seconded, John N. Chain of Humboldt County was elected to Life Membership.

On motion duly made and seconded, H. H. Chamberlain of Los Angeles County was elected to Life Membership.

A motion was duly made and seconded that Hugo Childress of Sacramento County be elected to Life Membership. Motion lost. No affirmative votes.

On motion duly made and seconded, Fred B. Clark of Los Angeles County was elected to Life Membership.

On motion duly made and seconded, Harry W. Coffin of Los Angeles County was elected to Life Membership.

On motion duly made and seconded, G. Glass Davitt of Los Angeles County was elected to Life Membership.

On motion duly made and seconded, George Dock of Los Angeles County was elected to Life Membership.

A motion was duly made and seconded that Ehler Eiskamp of Santa Cruz County be elected to Life Membership. Motion lost. No affirmative votes.

A motion was duly made and seconded that James L. Faulkner of Tehama County be elected to Life Membership. Motion lost. No affirmative votes.

On motion duly made and seconded, Morris J. Gates of Santa Cruz County was elected to Life Membership.

A motion was duly made and seconded that Hans H. Gerisch of Los Angeles County be elected to Life Membership. Motion lost. No affirmative votes.

A motion was duly made and seconded that Albert C. Germann of Los Angeles County be elected to Life Membership. Motion lost. No affirmative votes.

On motion duly made and seconded, Thomas Glenn of Los Angeles County was elected to Life Membership.

On motion duly made and seconded, Etta Gray of Los Angeles County was elected to Life Membership.

On motion duly made and seconded, George P. Laton of Los Angeles County was elected to Life Membership.

On motion duly made and seconded, L. M. Liles of Santa Cruz County was elected to Life Membership.

A motion was duly made and seconded that Lawrence R. Linhart of Los Angeles County be elected to Life Membership. Motion lost. No affirmative votes.

On motion duly made and seconded, T. C. Low of Los Angeles County was elected to Life Membership.

A motion was duly made and seconded that James B. Luckie of Los Angeles County be elected to Life Membership. Motion lost. No affirmative votes.

A motion was duly made and seconded that W. P. Magan of Los Angeles County be elected to Life Membership. Motion lost. No affirmative votes.

On motion duly made and seconded, F. S. Marnell of Santa Cruz County was elected to Life Membership.

A motion was duly made and seconded that O. C. Marshall of Santa Cruz County be elected to Life Membership. Motion lost. No affirmative votes.

A motion was duly made and seconded that W. G. Milholland of Fresno County be elected to Life Membership. Motion lost. No affirmative votes.

A motion was duly made and seconded that Richard F. Mogan of Los Angeles County be elected to Life Membership. Motion lost. No affirmative votes.

On motion duly made and seconded, Gilbert R. Owen of Los Angeles County was elected to Life Membership.

A motion was duly made and seconded that Edwin F. Patton of Los Angeles County be elected to Life Membership. Motion lost. No affirmative votes.

On motion duly made and seconded, F. M. Pottinger of Los Angeles County was elected to Life Membership.

On motion duly made and seconded, J. E. Pottinger of Los Angeles County was elected to Life Membership.

On motion duly made and seconded, O. B. Sheets of Los Angeles County was elected to Life Membership.

On motion duly made and seconded, Kirby B. Smith of Alameda County was elected to Life Membership.

On motion duly made and seconded, Grant Gould Spear of Los Angeles County was elected to Life Membership.

On motion duly made and seconded, William E. Stevens of San Francisco County was elected to Life Membership.

A motion was duly made and seconded that Hugh J. Strathearn of Los Angeles County be elected to Life Membership. Motion lost. No affirmative votes.

A motion was duly made and seconded that N. R. Sullivan of Santa Cruz County be elected to Life Membership. Motion lost. No affirmative votes.

On motion duly made and seconded, Emil Tholen of Los Angeles County was elected to Life Membership.

A motion was duly made and seconded that Packard Thurber of Los Angeles County be elected to Life Membership. Motion lost. No affirmative votes.

On motion duly made and seconded, Carl T. Wallace of Humboldt County was elected to Life Membership.

On motion duly made and seconded, Charles A. Warmer of Los Angeles County was elected to Life Membership.

On motion duly made and seconded, A. H. Weitkamp of Los Angeles County was elected to Life Membership.

A motion was duly made and seconded that D. S. Woodard of Santa Cruz County be elected to Life Membership. Motion lost. No affirmative votes.

#### 4. Financial:

(a) Financial reports showing bank balances as of February 20, 1948, receipts and expenditures for January and for the seven months ended January 31, 1948, and the balance sheet as of January 31, 1948, were received.

(b) On motion duly made and seconded, it was voted to invest \$150,000 of current cash funds in U.S. Treasury 2½ per cent bonds and to turn these bonds over to the Trustees of the California Medical Association. Dr. Shipman's negative vote on this motion is herewith recorded.

### 5. Blood Banks:

Dr. Bruck reported that the C.M.A. Blood Bank Commission was engaged in a survey of all county medical societies, to determine what blood bank facilities existed in each county and under what sponsorship or control. He pointed out that in one county, where the county medical society was presumed to be a participant in the program, the American Red Cross had seen fit to omit any reference to the county society in its literature and publicity.

Dr. Bruck expressed the belief that the Blood Bank Commission, possibly augmented by additional appointments, should be continued and on motion duly made and seconded, it was so ordered.

### 6. Rebates:

Discussion was held on the recent statements of the Association regarding rebate practices. A letter from Dr. Richard O. Bullis, Secretary of the Los Angeles County Medical Association, was read, in which attention was called to a resolution adopted by that Association's Council in its meeting of January 15, 1948, calling the attention of the C.M.A. Council to alleged misstatements issued by public relations counsel for the C.M.A. A letter addressed to the Councils of the Los Angeles County Medical Association and the California Medical Association by the Los Angeles Radiological Society, a division of the Los Angeles County Medical Association, was also read.

Legislation introduced in the 1947 Legislature was also discussed and it was brought out that one or more members of the Board of Medical Examiners had reportedly been opposed to this measure and this attitude had resulted in legislative votes against the proposal. On motion by Dr. Bailey, seconded by Dr. Cline, the following resolution was unanimously adopted:

WHEREAS, The California Medical Association has long been on record as favoring legislation to abolish all types of rebating practices, and,

WHEREAS, At the time of the hearing of an anti-rebating bill in 1947 members of the legislature who were on the committee hearing the bill made the statement that they had been informed that a member of the Board of Medical Examiners was against this bill, and that they were accordingly voting against it, and

WHEREAS, As recent newspaper publicity has conclusively shown, the public is righteously indignant that such practices have so long been tolerated by organized medicine, and

WHEREAS, In the minds of both the public and the legislators, the State Board of Medical Examiners' opinion on legislation is of very great importance, now, therefore, be it

*Resolved*, That the Council of the California Medical Association makes this formal request of the State Board of Medical Examiners to make public the attitude of its members on the subject of rebating practices, and, if necessary, to take a roll call vote on such a decision which

will also be publicized in order that when further attempts at legislation to control rebating practices are made, there will be no doubt in the minds of any of the legislators as to whether each individual member of the Board is in favor of rebating or against it.

On motion by Cline, seconded by Kneeshaw, it was unanimously voted that the Chairman appoint a Council committee to review the statements of the Council and of public relations counsel to determine if such statements were adequate and accurate.

### 7. Committee on Industrial Practice:

(a) A letter from the Sonoma County Medical Society was read, in which the Council was urged to introduce legislation to provide free choice of physician by injured employees coming within the industrial compensation laws. On motion duly made and seconded, it was voted to instruct the executive secretary to notify the Sonoma County Medical Society that the Council has reviewed this situation, that this legislation could not be introduced in the 1947 Legislature because of the lack of time before the close of the legislative session, and that the instructions of the House of Delegates (1947) will be carried out.

(b) A letter from Dr. Peter Blong, Chairman of the Committee on Associated Societies and Technical Groups, was read, in which he recommended that standing orders for industrial nurses be approved for posting in industrial establishments where a physician was not on duty during all working hours. Discussion of this proposal brought the opinion from legal counsel that the existence of standing orders could not be construed as giving a nurse authority to perform services for which she was not licensed or trained.

On motion duly made and seconded, it was voted that the following resolution be adopted:

WHEREAS, The posting and following of standing orders for nurses cannot take the place of a physician, and

WHEREAS, The maintenance of standing orders for nurses may lead to the assumption by the nurse of diagnostic and therapeutic procedures for which she is not trained, qualified or licensed, and

WHEREAS, Nurses are qualified and licensed to act in real emergencies and are able to secure a physician without undue loss of time where his professional services are needed; now, therefore, be it

*Resolved*, That the Council of the California Medical Association hereby expresses its opposition to the practice of posting standing orders for nurses in industrial or other establishments.

(c) A suggestion that a nurse be given a place on the Association's Annual Session program was received and it was noted that the 1948 program is already full.

(d) A suggestion was received that the Association sponsor essays among school students on the subject of health insurance. After discussion, it was

duly moved, seconded and voted that public relations counsel contact state educational authorities to determine their attitude on this subject and draw up suitable material for the use of students in their own debating and essay requirements, notifying the county medical societies that such material is available.

(e) Dr. Donald Cass, chairman of the Committee on Industrial Practice, reported that his committee has received a number of suggestions for possible revision of the schedule of fees adopted by the Industrial Accident Commission and would review all suggestions with the thought of preparing a revised schedule for presentation to the Commission, if the Council approves.

(f) Mr. Hunton reported on a case where a member, with the aid of the Association, had filed claim for a surgical fee higher than the minimum fee in the present schedule and where the insurance carrier had reduced his request to the minimum. The Commission held a hearing and awarded the higher fee to the physician, the first known case where the fee claims procedure of the Commission has been tested.

### 8. California Physicians' Service:

Dr. C. L. Cooley, Secretary of C.P.S., reported that several Delegates to the C.M.A. have already taken a tour of the new C.P.S. offices in San Francisco and that all Delegates were being invited to do so during the 1948 Annual Session. He also reported that there were 8,722 physician members of C.P.S. as of February 20, 1948, and that the Veterans' Administration program was now operating on a cost-plus basis for expenses and was proceeding smoothly. Where existing membership groups are being reopened for added members, Dr. Cooley stated that a statement of health was being required from new applicants and that 35 per cent of such applicants are being rejected because of poor health risks.

Mr. William M. Bowman, Executive Director of C.P.S., distributed a financial statement of C.P.S. as of January 31, 1948, which reflected a balance of \$65,446 in the stabilization fund, the first time that this account has shown a favorable balance. Mr. Bowman stated that physicians' statements are now being paid without delay and that operating expenses are 16.2 per cent of gross revenues and are declining to an even lower level. In response to questions from members of the Council, he stated that an increase in unit value would necessarily have to be decided by the Board of Trustees; in reply to a second question, he stated that C.P.S. was working on development of an individual membership contract and that he anticipated some announcement on this might be ready late in 1948.

### 9. Legal Department:

Mr. Hassard reported that the Railway Mediation Board had ruled in favor of the Association of Santa Fe Coast Lines Physicians in holding them to be

within the jurisdiction of the Railway Labor Board. Within the past few days a contract had been signed between the physicians in this group and the board of directors of Santa Fe Hospital Association, in which the matter of compensation of physicians was left open pending negotiation; if negotiation fails, either side may ask the Railway Mediation Board to take up this question. On motion duly made and seconded, it was voted to continue in existence the committee which has been conferring with the Santa Fe physicians and that additional members be appointed to this committee if advisable.

Mr. Hassard also brought up the recent ruling of the State Board of Equalization to the effect that hospitals which employed professional personnel on a compensation basis higher than that in public hospitals could not be considered tax-exempt. The Association of California Hospitals has stated its intention to work for the repeal of that particular section of the non-profit hospital law. On motion duly made and seconded, Mr. Hassard was authorized to work with counsel for the Association of California Hospitals in this regard, subject to approval by the chairman of the Committee on Public Policy and Legislation.

Mr. Hassard reported on a recent decision of the Second District Court of Appeals which held that the taking of x-ray films in fracture or suspected fracture cases should be considered a matter of "judicial notice" to be followed by all physicians and not a matter of professional judgment to be determined by expert testimony in case of dispute. On motion duly made and seconded, it was voted to authorize legal counsel to follow this case and to file a brief as *amicus curiae* on behalf of the Association if the case is carried to the Supreme Court.

### 10. Recess and Executive Session:

At this point the Council went into executive session, with Messrs. Hunton, Hassard, Read, Whitaker and Clancy remaining by request.

### 11. New Mexico Physicians' Service:

Mr. Hunton read a letter he had recently received from New Mexico Physicians' Service in which the difficulties of that organization since its start in business in April, 1946, were outlined, warm thanks were expressed to the California Medical Association for the encouragement and financial assistance extended through loans, and a check for \$500 as the first repayment of the existing loan was enclosed. The letter stated that New Mexico Physicians' Service and its affiliate, Affiliated Hospital Plan, were operating with great satisfaction to all concerned and that it was the hope of the physicians heading these plans to make more substantial repayments to the C.M.A. in the future.

### 12. Recess:

At this point, 6:45 p.m., the Council recessed until 9:30 a.m. Sunday, February 22, 1948.

### 13. Reconvention:

The Council reconvened at 9:30 a.m., Sunday, February 22, 1948, in Conference Room No. 6 of the Biltmore Hotel, Los Angeles.

### 14. Roll Call:

All officers and Councilors noted present on February 21 were present. Also present by invitation were Messrs. Hunton, Hassard, Wheeler, Read, Whitaker, Clancy, Kihm, Waterson, and Donovan. Present during a portion of the day, by invitation, were Dr. Wilton L. Halverson, State Director of Public Health; Dr. Lyell C. Kinney, Chairman of the C.M.A. Cancer Commission, and Dr. Dwight H. Murray, Chairman of the Committee on Public Policy and Legislation.

Present as luncheon guests were Hon. Goodwin Knight, Lieutenant Governor of California, and Hon. Sam L. Collins, Speaker of the Assembly of the California Legislature.

### 15. Benevolence Committee:

Dr. Anderson, Chairman of the C.M.A. Benevolence Committee, read correspondence which he had had with Dr. Elizabeth Mason-Hohl, in his endeavor to ascertain if the retirement home planned by the Los Angeles County Physicians' Aid Association would be open to receive needy physicians' cases from other counties. He also reported that the Los Angeles County Physicians' Aid Association had decided not to attempt the award of door prizes at the C.M.A. 1948 Annual Session. Upon motion duly made and seconded, this report was ordered received, Dr. Anderson commended for his efforts and instructed to continue working with the Los Angeles County group in an effort to iron out any differences of opinion which might exist between the two committees.

Dr. Anderson stated that Dr. Robert A. Peers, a member of the Benevolence Committee, wished to terminate his membership on the committee and it was agreed that a replacement should be considered at the time of the Annual Session.

### 16. California Medicine:

Mr. Hunton reported that a vacancy existed on the Editorial Board of CALIFORNIA MEDICINE due to the death of Dr. Clark Johnson, urologist. On nomination duly made and seconded, Dr. Lyle Craig of Pasadena was elected to this position.

Mr. Hunton was then asked the reasons for the withdrawal of CALIFORNIA MEDICINE from the Co-operative Medical Advertising Bureau of the A.M.A., an action which drew editorial comment in the Journal A.M.A., issue of February 7, 1948. He outlined the steps behind this withdrawal, described the present system of soliciting advertising and told the mechanics of the Advertising Committee, which passes on proffered advertising of products not accepted by A.M.A. Councils. Dr. Murray, a Trustee of the A.M.A., stated that this matter had been discussed at the A.M.A. Trustees' meeting of February 19-20 and no further action was planned.

### 17. American Medical Association:

Dr. Murray stated that the Trustees of the A.M.A. had sent a congratulatory cable to the British Medical Association for the stand that Association had taken in opposition to the socialization of medicine in Great Britain. He also reported that plans were being laid to secure, if possible, the deduction for income tax purposes of some fixed maximum annual amount of premiums or payments by physicians for establishing their own retirement pension plans.

### 18. California State Department of Public Health:

Dr. Wilton L. Halverson, State Director of Public Health, placed before the Council a digest of a program adopted by a joint committee representing the American Medical Association, American Public Health Association, American Public Welfare Association and American Hospital Association, for a uniform public health program. This outline was discussed at length, particularly as to its possible impingement on the private practice of medicine, and the Council Chairman, who serves as a member of the Advisory Committee to the State Department of Health in considering this program, was authorized to continue his work with this committee.

### 19. Cancer Commission:

Dr. Lyell C. Kinney, chairman of the C.M.A. Cancer Commission, stated that Dr. Lester Breslow of the State Department of Public Health, had asked the members of the Cancer Commission to serve in an advisory capacity in the consideration of the program noted in item 18. This request was approved by the Council.

Dr. Kinney also reported that Dr. Frederick Hook, U.S.N. (Retired), had been employed by the Cancer Commission as its Medical Director and would work jointly for the Cancer Commission and for the American Cancer Society, California Division. His salary is to be \$12,000 annually, half of which would be paid directly by the American Cancer Society and half by the C.M.A., with the understanding that the American Cancer Society would make a grant to the C.M.A. of any amount in excess of a salary figure permissible under the Cancer Commission's existing budget. This was estimated to be about \$3,000 annually, which would mean a grant from the American Cancer Society to the C.M.A. of \$3,000 annually to be applied toward Dr. Hook's salary. This arrangement was approved by the Council.

The Council also approved the maintenance of an office by Dr. Hook in the San Francisco office of the American Cancer Society at 467 O'Farrell Street.

### 20. Woman's Auxiliary to the C.M.A.:

Dr. Cline, a member of the C.M.A. Advisory Committee to the Woman's Auxiliary to the C.M.A., outlined proposed changes in the Constitution of the Auxiliary and on motion duly made and seconded, the Council voted to approve these proposals for submission to the Auxiliary for adoption or rejection.

### 21. *Palo Alto Clinic:*

A proposal was presented by the Palo Alto Clinic for the inauguration of a panel system of medical care for the students of Menlo Junior College and Menlo School, the panel to be open to all qualified physicians within a specified radius of the school and the funds, collections, etc., to be managed by the Palo Alto Clinic and disbursed semi-annually on a basis of fee units. Palo Alto Clinic stated that the Santa Clara County Medical Society had approved such a contract in principle but the San Mateo County Medical Society had not; approval in principle by the Council was requested. On motion duly made and seconded, it was voted that the Palo Alto Clinic be notified that the Council sees no immediate objection to the proposal but that the Council must see the actual proposed contract before it can give any approval. Dr. MacDonald recorded as voting no.

### 22. *Public Relations:*

Mr. Whitaker reported that a bill to provide reapportionment of the State Senate on a population basis was being prepared as an initiative, that such a measure was inimical to business and professional interests and was being sponsored by labor interests. He urged that all physicians be notified of this measure and asked to oppose it on the ballot.

### 23. *Public Policy and Legislation:*

Dr. Murray and Mr. Read reported that both state and national primaries scheduled for June and elections for November would be most important and should be carefully watched.

Regarding the proposed rebate bill, on motion duly made and seconded, Mr. Hassard was authorized to meet with Mr. Robert Bauer of the Better Business Bureau of Los Angeles and Mr. Don Keller, District Attorney of San Diego County, and to notify them that the C.M.A. intended to prepare, introduce and work for enactment of a bill of its own drafting. This meeting is scheduled for February 23, 1948.

### 24. *New and Miscellaneous Business:*

(a) A request from the Investors League for financial support was received and ordered filed.

(b) Referring back to the program proposed by the State Department of Public Health, it was agreed that the public health program of the department for chronic illnesses should be initiated only after application of a means test and with the understanding that the Department should not enter into the practice of medicine in promoting or guiding such a program (see item No. 18).

(c) Re: C.M.A. employees' retirement plan. Dr. Charnock, chairman of a special committee, reported on proposals made by several underwriters for inauguration of a retirement pension plan for C.M.A. employees. On motion duly made and seconded, it was voted that an employee retirement plan be approved in principle, details to be worked out by the committee and made available to all members of the

Council for their study prior to the next Council meeting.

(d) A request from the California Society for Crippled Children for approval of a proposed epilepsy program by that society was considered and it was moved, seconded and voted that this program be checked further with members of the Advisory Medical Committee of the Society before any action is taken.

(e) National Society for Medical Research. A request from this organization for financial support in its campaign to combat antivivisection movements was read and it was regularly moved, seconded and voted that the C.M.A. contribute \$500 to this cause.

(f) California Community Health Education Project: Dr. Cline read a request from the California State Department of Education for a representative of the C.M.A. to attend meetings of the California Community Health Education Project in Yosemite Park, March 4 to 6. It was regularly moved, seconded and voted that the chairman designate a representative of the Association to attend this meeting.

(g) California Tuberculosis and Health Association: Dr. Askey read a report of a meeting between a special committee of the Council and a similar committee of the California Tuberculosis and Health Association, in which agreement was reached on various aspects of the program of the Tuberculosis Association which had been criticized by physicians. Dr. Askey stated his belief that the governing board of the Tuberculosis Association would adopt the proposed program changes and he urged that the Association continue its cooperation with the Tuberculosis Association. On motion duly made and seconded, Dr. Askey was commended for his work with this committee and the committee was ordered continued.

(h) Veterans' Administration: A complaint against a California physician who was accused of overtreating Veterans' Administration patients was read and discussed. The correspondence indicated that the matter had already been referred back to the Veterans' Administration and that no action was indicated at this time; if any action is to be taken against the physician, legal counsel ruled that it must originate with the county society where the doctor holds membership.

### 25. *Executive Session:*

At this point the Council reentered executive session, Messrs. Hassard, Read, Whitaker and Clancy remaining by request.

### 26. *Rise from Executive Session:*

At this point the Council rose from executive session.

### 27. *Time and Place of Next Meeting:*

It was voted to hold the next Council meeting at 10 a.m., Saturday, April 10, 1948, in the St. Francis Hotel, San Francisco.

Adjournment.

## In Memoriam

BONN, HARRY KRAYLOR. Died in Los Angeles, January 9, 1948, age 60, of a heart ailment. Graduate of the Indiana University School of Medicine, Bloomington-Indianapolis, 1908. Licensed in California in 1922. Doctor Bonn was a member of the Los Angeles County Medical Association, the California Medical Association, and a Fellow of the American Medical Association.

DYKE, LOUIS HENRY, JR. Died in Berkeley, February 3, 1948, age 38, of a heart attack. Graduate of the University of California School of Medicine, Los Angeles, 1937. Licensed in California in 1937. Doctor Dyke was a member of the Alameda County Medical Association, the California Medical Association, and a Fellow of the American Medical Association.

HANFORD, FRANK WOOD. Died in Van Nuys, January 24, 1948, age 78, of coronary disease with infarction. Graduate of the Bennett College of Eclectic Medicine and Surgery, Chicago, Illinois, 1905. Licensed in California in 1914. Doctor Hanford was a retired member of the Los Angeles County Medical Association and the California Medical Association.

HAMILTON, JAMES KIAH. Died in Alameda, December 17, 1947, age 67, of coronary occlusion. Graduate of the University of California Medical School, Berkeley-San Francisco, 1903. Licensed in California in 1904. Doctor Hamilton was a retired member of the Alameda County Medical Association, the California Medical Association, and an Affiliate Fellow of the American Medical Association.

HARRAL, PINCKNEY. Died in Mesa, Arizona, January 4, 1948, age 40, of burns. Graduate of Northwestern University Medical School, Chicago, Illinois, 1933. Licensed in California in 1933. Doctor Harral was a member of the San Francisco County Medical Society, the California Medical Association, and a Fellow of the American Medical Association.

HASTINGS, HILL. Died in Los Angeles, February 14, 1948, age 74, of bronchial pneumonia. Graduate of the University of Virginia Department of Medicine, Charlottesville, 1895. Licensed in California in 1901. Doctor Hastings was a retired member of the Los Angeles County Medical Association, the California Medical Association, and an Affiliate Fellow of the American Medical Association.

MILLER, THATCHER. Died in San Diego, January 29, 1948, age 62. Graduate of the College of Physicians and Surgeons of Baltimore, Maryland, 1906. Licensed in California in 1918. Doctor Miller was a member of the San Diego County Medical Society, the California Medical Association, and a Fellow of the American Medical Association.

O'CONNOR, JAMES HUNT. Died in San Francisco, February 2, 1948, age 78, following a long illness. Graduate of the Cooper Medical College, San Francisco, 1895. Licensed in California in 1895. Doctor O'Connor was a retired member of the San Francisco County Medical Society, the California Medical Association, and an Affiliate Fellow of the American Medical Association.

O'CONNOR, THOMAS HUNT. Died in San Francisco, February 4, 1948, age 68, of a cerebral hemorrhage. Graduate of the Cooper Medical College, San Francisco, 1908. Licensed in California in 1908. Doctor O'Connor was a member of the San Francisco County Medical Society, the California Medical Association, and a Fellow of the American Medical Association.

OFTEDAL, SVERRE. Died in Glendale, February 5, 1948, age 64. Graduate of Rush Medical College, Illinois, 1911. Licensed in California in 1929. Doctor Oftedal was a member of the Los Angeles County Medical Association, the California Medical Association, and a Fellow of the American Medical Association.

OVEREND, EDMUND J. Died in Oakland, February 24, 1948, age 93. Graduate of the Medical College of the State of South Carolina, Charleston, 1883. Licensed in California in 1884. Doctor Overend was a retired member of the Alameda County Medical Association, and the California Medical Association.

WELLS, GEORGE DILLARD. Died in Los Angeles, February 9, 1948, age 63. Graduate of Barnes Medical College, St. Louis, Missouri, 1911. Licensed in California in 1923. Doctor Wells was a member of the Los Angeles County Medical Association, the California Medical Association, and the American Medical Association.

YOST, FRANCIS OLIVER. Died in Los Angeles, January 30, 1948, age 77. Graduate of Harvard Medical School, Boston, Massachusetts, 1893. Licensed in California in 1893. Doctor Yost was a member of the Los Angeles County Medical Association, the California Medical Association, and a Fellow of the American Medical Association.



# NEWS and NOTES

## NATIONAL • STATE • COUNTY

### ALAMEDA

To assist in overcoming the shortage of nurses, the Woman's Auxiliary to the Alameda County Medical Association is promoting a poster prize contest designed to attract high school girls to nursing as a profession. Under the direction of Mrs. Samuel P. Hall, the campaign is being carried on through the art departments of high schools in Alameda County. Cash prizes are offered for the best posters calling attention to the high purposes of the nurse's profession. Members of the Auxiliary are assigned to stimulate interest in the contest in each high school in the county. Prizes will be awarded for the best poster in each school, as well as for the best, second best and third best in the entire county.

### BUTTE

Dr. W. J. Perry of Chico has been appointed assistant medical director of the Butte County Hospital by the county board of supervisors. The appointment was made to relieve Dr. Gaylord Boom, medical director of the hospital, of part of an increasing work load.

### IMPERIAL

Dr. Richard Mattox, formerly of Fresno, last month was appointed County Physician by the Imperial County Board of Supervisors to take over the duties of Dr. Burke Schoensee, who resigned that post to enter private practice. Dr. Schoensee will continue, however, to serve as County Health Officer.

### LOS ANGELES

Dr. Howard Webster Fleming of Laguna Beach has been appointed a member of the State Board of Medical Examiners by Governor Earl Warren.

### SAN DIEGO

Following a campaign by the medical profession and the Better Business Bureau, the San Diego City Council has adopted an ordinance making it a misdemeanor to offer or accept a rebate in connection with the sale of medical goods or the supplying of a medical service. Violation of the ordinance is punishable by a fine of \$500 or a six-month jail sentence.

\* \* \*

Dr. William W. Stadel, formerly assistant medical director of the Alameda County Hospital, recently was appointed superintendent of the San Diego County Hospital. Dr. Stadel will take over the new post May 1 upon the retirement of Dr. H. M. Fine, who has been serving as superintendent since March, 1944, under a wartime appointment.

### SAN FRANCISCO

Promotion of Dr. Sidney Raffel to a professorship in bacteriology was announced recently by Acting President Alvin

C. Eurich of Stanford University. Dr. Lowell A. Rantz and Dr. David A. Ryland were made associate professors of medicine; Dr. Leland J. Rather, Dr. David C. Regnery and Dr. Victor Richards were promoted to assistant professorships in pathology, biological sciences, and surgery, respectively.

\* \* \*

The Stanford Eye Bank, located at the Stanford University Hospital, San Francisco, provided 33 corneas for eye graft operations during its first year of operation.

Loren R. Chandler, M.D., dean of the Stanford Medical School, said that all qualified eye surgeons on the Pacific Coast have been invited to make use of the Eye Bank's facilities.

Although popularly termed an Eye Bank, the organization is really more of a clearing house or central registry where patients in need of corneal transplantation operation and their fellow men willing to offer them a chance for sight can be brought together within a short period. The corneas collected and preserved by the Eye Bank are distributed without cost to either patient or surgeon, except for a small service fee to cover the cost of handling the eye tissue. Full information on the correct procedure for registration of donors can be secured by telephoning the Eye Bank at West 1-8000, or by writing to the Stanford Eye Bank, 2398 Sacramento St., San Francisco.

### SANTA BARBARA

Dr. Walter Graham of Santa Barbara has been elected president of the American Hand Society. The Society, which is an organization of physicians and surgeons specializing in correction of injured or otherwise impaired hands, is an outgrowth of work done in this field during the war.

### SANTA CLARA

Sixty Santa Clara County physicians in general practice are organizing as a branch of the American Academy of General Practice.

Purposes of the Academy, as outlined by Dr. Stanley R. Truman of Oakland, who is secretary of the national organization, are to promote and maintain high standards of the general practice of medicine and surgery, to encourage and assist young men and women in preparing, qualifying and establishing themselves in general practice, to protect the right of the general practitioner to engage in medical and surgical procedures for which he is qualified, to assist in providing postgraduate courses for general practitioners, and to advance medical science and private and public health.

Dr. Donald R. Threlfall has been named temporary chairman of the Santa Clara County Branch, Dr. Joseph T. Pace acting secretary, and Dr. E. C. Lawrence acting treasurer. Two committees were named, one on membership and the other on postgraduate training. Members of the membership committee are Dr. Thomas L. Blanchard, Dr. James Lovely, Dr. Richard T. Bigotti, Dr. Edward Liston, and Dr. John E. Cox. Dr. Stanley Kneeshaw, Dr. Leland B. Blanchard and Dr. A. R. Currlin make up the committee on education.

## TULARE

Addition of another full-time physician to the staff of the Tulare County Hospital has been authorized by the county board of supervisors. Dr. A. E. Gardner, assistant superintendent of the hospital, had urged creation of the \$371 a month position in view of a sharp increase in the number of clinic cases coming to the hospital. The board asked Dr. Gardner to work out plans for additions to clinic facilities.

## GENERAL

The International Society of Hematology will hold its bi-annual meeting at the Hotel Statler in Buffalo, New York, August 23-26, 1948. All scientific sessions and exhibits will be open to scientists interested in hematology. Those interested in attending the meetings may communicate with Dr. Sol Haberman, secretary, The William Buchanan Blood Center, Baylor Hospital, Dallas, Texas.

\* \* \*

The National Gastroenterological Association will hold its Thirteenth Scientific Session at the Hotel Pennsylvania in New York City, on June 7-10, 1948. The program for the first three days will consist of symposia on gastroduodenal ulcer; ulcerative colitis; jaundice and metabolism, nutrition and allergy. A panel discussion, which will be followed by a "question and answer" period, will cover the topics of diabetic, tuberculous, psychosomatic and cardiac manifestations in gastro-intestinal diseases. The fourth day of the session will be devoted to a clinical day at cooperating hospitals in New York City.

Further details and a copy of the program may be obtained by writing to the secretary, National Gastroenterological Association, 1819 Broadway, New York 23, New York.

\* \* \*

The American Society for the Study of Sterility will hold its Fourth Annual National Session on June 21 and 22, 1948, at the Congress Hotel in Chicago. The two-day program will be divided into a special series of panel discussions on male infertility, with papers to be read on female and miscellaneous infertility aspects on the second day.

The chairman of the session is Dr. Edwin C. Robertson, chairman of the Department of Obstetrics and Gynecology of Queens College, Ontario, Canada.

Additional information may be obtained from the secretary, Dr. John O. Haman, 490 Post Street, San Francisco 2, California.

\* \* \*

Advice from the "grass roots up" on the nation's health needs will be formulated by physicians and other experts at the National Health Assembly to be held in Washington from May 1 to 4.

Called by Federal Security Administrator Oscar R. Ewing to advise him on the health program requested by President Truman, on January 30, the Assembly will enlist the aid of all major health agencies and organizations in formulating the first steps toward practical national health goals for the next ten years.

"One important thing that we hope will come out of the Assembly," said Mr. Ewing, "is a clearer picture of just how much agreement there is in certain supposedly controversial health fields. I have an idea we are going to find that these areas of agreement are larger than many people

think. Once we have that established, we can find out how far we can all go forward on a nationwide front."

Dr. Edward L. Bortz, Dr. R. L. Sensenich, and Dr. George F. Lull, respectively president, president-elect, and secretary of the American Medical Association, are among the more than 30 leaders in professional and lay fields who are serving on the National Health Assembly's Executive Committee.

\* \* \*

Twelve authorities on nutrition will present their latest work during a joint meeting of the American Academy of Applied Nutrition and the American Anti-Arthritis Association to be held at the Fairmont Hotel, San Francisco, April 15, 16 and 17, immediately following the California Medical Association meeting. The first day of the meeting will be taken up with registration and the annual business and committee meetings of the Academy, but an invitation is extended to all members of the medical profession to attend the programs of April 16 and 17, which will present the following speakers:

## Friday

Dr. David Adlersberg, New York City: Clinical Significance and Recognition of Disturbances of Lipid Metabolism.

Dr. Douglas G. Campbell, San Francisco: Nutrition and Neuroses.

Dr. Sam J. McClendon, San Diego: The Aspects of Malnutrition in Public Health.

Dr. Vernon Luck, Los Angeles: The Pathology of Degenerative and Proliferative Arthritis and its Roentgenographic Correlation.

A program of practical nature for the Associate Membership of the Academy, to be held concurrently with the Friday afternoon scientific session, has been arranged by Dr. M. C. Bennett, and will present the following speakers:

Mr. Horace Dryden, Modesto: The Meaning of Nutrition in Egg and Poultry Production.

Dr. Max Kleiber, Davis: Dietary Deficiencies and Energy Metabolism.

Friday evening at 7 o'clock a banquet will be held for members and their guests at the Fairmont. Dr. George A. Selleck of San Francisco, who is in charge of the banquet menu, will speak on the "Romance of Foods."

## Saturday

At 9 a.m., Saturday, the following scientific sessions will be held:

Dr. John Barrow, Los Angeles: Fundamentals in the Treatment of Arthritis.

Dr. James A. Shield, Richmond, Virginia: Soils—Their Nature and Relationship to Health.

Dr. John Bertrand, Berkeley: Isotopes and Their Relation to Nutrition.

Dr. E. O. Essig, Berkeley: Insects in Relation to the Food of Humans.

Concurrently with the Saturday morning scientific sessions, two speakers will appear before the Associate Membership.

Catherine Sheen, Sacramento: The School Lunch Program.

M. A. Joslyn, Berkeley: Food Processing Methods and Their Effect on Nutritive Quality.

For information regarding either the activities of the Academy or membership requirements, inquiries may be addressed to the Business Office of the Academy, 1226 Wilshire Boulevard, Los Angeles 14, California. Hotel reservations at the Fairmont Hotel for the 1948 meeting may be secured through the same office.

## INFORMATION

### County Medical Societies Called Upon to Meet Public Demand for Night Service

The American Medical Association is calling upon county medical societies to meet the public demand for emergency medical service at night.

"From many sections of the United States," says an editorial in a recent (March 6) issue of *The Journal of The American Medical Association*, "complaints have come lately that persons who have called physicians late at night have been unable to secure attendance from either those whom they considered their family physicians or from specialists or, indeed, from any physician."

The American Medical Association says that large county medical societies or urban groups should maintain a physicians' telephone exchange which would take the responsibility for locating physicians if response is not made to the ringing of the telephone in the home or in the office.

The solution is simple and practical, requiring only a minimum of community organization. A number of county medical societies already maintain a physicians' telephone exchange where doctors' calls may be received and doctors located if their office or home telephones do not respond. Such an exchange can be utilized as at night or on holidays, simply by furnishing the exchange with a list of physicians who are able and willing to make night calls. Such physicians would probably include the younger general practitioners, newcomers to the community, and others in general practice. If such a roster were available, and its availability widely publicized, night calls for medical service would soon gravitate to this center and the patient would be assured the services of a physician.

Under such a system the necessity for calling many doctors would be eliminated. Two calls at most would be necessary. Where there is no physicians' telephone service, it might be possible to have the hospitals cooperate by handling such night calls.

The Medical Society of the District of Columbia and the Milwaukee County Medical Society have found such a plan practical, as have a number of other societies.

By this simple and practical expedient, which is doubtless in effect in modified form in a number of communities, the sick can be served and the medical profession can redeem its pledge of unselfish public service.

It is highly important that where such arrangements exist they be brought to the attention of the lay people in the community through appropriate public channels, not once but repeatedly, to keep the shifting populations well informed.

Few problems in the field of medical service have aroused so much public discussion. Whether resentment against physicians is justified or not, it does harm. The solution for this problem is so eminently simple and would reflect so favorably upon physician-patient relationships that medical societies everywhere are urged to give it serious consideration immediately.

### Cancer Society Campaign

With the California Division of the American Cancer Society and its many county branches currently conducting their annual educational and fund raising campaign, information as to the functions of the county branches and the county medical societies in the cancer control program is in order.

The county branches of the American Cancer Society list as their principal functions:

1. To assist the medical profession in cancer control;
  2. To encourage the diagnosis of cancer in the early curable stage;
  3. To provide services for needy cancer patients.
- Because cancer control is a medical problem, projects of the American Cancer Society in any county must be advised upon and approved by the County Medical Society. The County Medical Society has the leading and important role in these joint cancer control programs.

Because the whole program of the county branch of the American Cancer Society is geared to assisting the physicians and the County Medical Society in cancer control, the effectiveness of this assistance, in turn, depends upon the cooperation of members of the County Medical Society.

The American Cancer Society maintains a continuing program of lay education which includes distribution of literature, magazine and newspaper publicity, and radio programs. It persistently stresses that all families in a community should know the danger signals of early cancer and go to their physician when such symptoms arise.

In order to make this lay education as personal and effective as possible, the county branch of the American Cancer Society maintains an Information Center where patients that do not have a physician may go for advice and whence they will be referred to a physician from the list of the County Medical Society.

Another function of the American Cancer Society, on a national, state and county level, is assistance

with the education of physicians in the diagnosis and treatment of early cancer.

On the county level, the county branches of the American Cancer Society give assistance to Tumor Boards in hospitals approved by the American College of Surgeons. The county branches furnish what financial assistance is necessary to make the Tumor Boards effective centers of consultation for all doctors and their cancer patients in the community and to increase their effectiveness as teaching centers for the medical profession.

The county branches of the American Cancer Society also are in a position to help physicians in services to needy cancer patients, particularly through a hospitalization program provided for early, medically indigent patients who are not entitled to care in the county hospital.

Members of the County Medical Societies can cooperate in the county programs of the American Cancer Society in various ways. They can help materially in the cancer control program by making themselves available for *talks on cancer to lay groups*.

Members can accept as private patients persons who wish a periodic physical examination for cancer and other chronic diseases when these cases are referred under the direction of the County Medical Society.

Through cooperation in the use of services provided by the American Cancer Society and help in developing and carrying out an effective program of lay education, appreciable new gains will be made in the joint program of cancer control.

### Postgraduate Courses

The Committee on Postgraduate Activities, California Medical Association, has been requested to publish a list of available postgraduate courses of particular interest to physicians in general practice. Following is a list of courses to be given during the spring and summer months at the various medical schools as indicated.

#### COLLEGE OF MEDICAL EVANGELISTS

##### Division of Postgraduate Medicine

Applications for admission may be directed to Dean of Graduate School of Medicine, Harold M. Walton, M.D., 312 North Boyle Avenue, Los Angeles 33, California.

Endocrinology—(8 periods)—Dr. Julius Bauer. Mondays: 8:00-9:30 p.m. Course begins April 5, 1948. Tuition: \$30.00.

Nutrition—(20 hours)—Michael J. Walsh, M.Sc. Wednesdays: 2:00-5:00 p.m.; 7:00 to 9:00 p.m. Course begins April 7, 1948. Tuition: \$25.00.

Wives of doctors may audit course for \$10.00.

General Surgery, Miscellaneous:

1. Surgical Staff Conferences—(32 periods)—Mondays: 8:00-10:00 a.m. Los Angeles General Hospital—general surgical staff at Los Angeles County General Hospital.

2. Neoplastic and Allied Diseases—(32 periods)—Thursdays: 10:00-11:30 a.m. Evans Hall, White Memorial Hospital. Regular meeting of White Memorial Hospital tumor board.

3. Urological Staff Conferences—(32 periods)—Mondays:

10:00-12:00 a.m. Los Angeles General Hospital. General consultation period of Urological Staff at Los Angeles County General Hospital.

#### UNIVERSITY OF SOUTHERN CALIFORNIA

##### Graduate Division of the School of Medicine

Communications should be directed to: George C. Griffith, M.D., Director, Graduate Division of the School of Medicine, P.O. Box 158, 1200 North State Street, Los Angeles 33, California.

April 6—Allergy (six weeks, Wednesday evening, weekly). Course No. 737.

April 7—Pulmonary Diseases (twelve weeks, Wednesday evening, weekly). Course No. 740.

April—Recent Advances in Internal Medicine (twelve weeks, one evening weekly). Course No. 745.

May—Recent Surgical Advances (twelve weeks, Wednesday evening, weekly). Course No. 756.

May—Principles of Physical Medicine (twelve weeks, full time). Course No. 775.

July—Physical Medicine in the Treatment of Anterior Poliomyelitis (four weeks, full time). Course No. 776.

August—Electrodiagnosis and Electromyography (four weeks, full time). Course No. 778.

Exact dates where no day of the month is stated can be had by addressing the Director of the Graduate Division.

#### UNIVERSITY OF CALIFORNIA MEDICAL SCHOOL

Direct communications to: Stacy R. Mettler, M.D., Head of Postgraduate Instruction, Medical Extension, University of California Medical Center, San Francisco 22, California.

June 21 through 25

Internal Medicine and General Surgery. Prepared especially for the general practitioner.

June 21 through July 2

Cytological Diagnosis of Cancer by the Smear Technique. This course is under the direction of Herbert F. Trout, M.D., Professor of Obstetrics and Gynecology. It will consist of daily lectures, laboratory and lecture demonstrations and laboratory practice in interpretation of smears. Emphasis will be placed upon vaginal smears for gynecological malignancies. Urological, gastric, and pulmonary techniques will also be covered. Complete information is available through the University Extension Division.

Course limited to 70 students. Physicians are required to furnish own microscopes.

June 28 through July 2

Pediatrics. This is a course in general pediatrics designed for those practicing chiefly or entirely with children. It will consist of lectures, clinical demonstrations and illustrative material.

#### UNIVERSITY OF CALIFORNIA MEDICAL SCHOOL CALIFORNIA

405 Hilgard Avenue, Los Angeles 24, California

April 19 through 23

Postgraduate instruction in neuropsychiatry.

Fee \$50 payable at the time of application.

Place: Auditorium D-14, Birmingham Veterans Administration Hospital, Van Nuys, Calif.

The Course: Open only to graduates of approved medical schools. The fundamentals of neurological examination and diagnosis will be presented. Psychodynamics, vascular and degenerative diseases of the central nervous system, psychoses pharmacology of the autonomic system, epilepsy, character disorders, alcoholism, C.N.S. tumors, C.N.S. syphilis, psychoneurosis and psychosomatic medicine will be presented by an excellent faculty.

#### STANFORD UNIVERSITY SCHOOL OF MEDICINE

The annual fall refresher courses will be held early in September. A complete announcement of courses will be published in a later issue.

## BOOK REVIEWS

**BLOOD DERIVATIVES AND SUBSTITUTES.** By Charles Stanley White, M.D., Sc.D. Former professor of surgery, George Washington University School of Medicine and Jacob Joseph Weinstein, B.S., M.D. Associate in Surgery, School of Medicine, George Washington University. The Williams and Wilkins Co. Price \$7.50.

The authors have written an encyclopedic volume in which they review the recent contributions to the subject of transfusions of blood derivatives and substitutes, the techniques of handling blood, and the organization of blood repositories. The volume is packed with useful information of value to technicians, corpsmen, medical students, directors of blood banks, and medical house officers. It is of less value to the general practitioner because the authors have not summarized the important practical considerations of each section in an adequate manner. This they might have done without impairing their scholarly contribution; also they could have crystallized their opinions on the basis of their broad experiences. The chapters dealing with the three major blood proteins and the procurement, preparations, and storage of plasma are very good, as is also the chapter on plasma fractions, and the chemical, physical, physiological, and immunological principles and their therapeutic indications.

It is clear from the discussion offered in Chapter IX that there are no substitutes short of plasma itself which can be called "plasma substitutes." The authors list a group of "emergency substances," but most of them violate the principles that "plasma substitutes" must not be antigenic and that they must be entirely innocuous. The authors are ardent advocates of the universal type O donor, and the thesis of type specificity of human blood plasma and serum for transfusions (in the opinion of the reviewer) is not advanced with enough force. The data they present in favor of universal type O blood are quoted from Army and Navy statistics, which deal with a young, vigorous and healthy population, and obviously cannot be compared with the often devitalized civilian population with which the average physician has to deal.

The authors wind up the academic discussion of their book with an exhaustive, yet terse and much condensed chapter on shock, in which they outline the major theoretical considerations in the treatment of this syndrome. For the first time all the important information having to deal with the subject of blood derivatives and plasma is collected in one volume. It should prove a source of stimulation for new departures in this field.

**PSYCHOPATHOLOGY AND EDUCATION OF THE BRAIN-INJURED CHILD.** By Alfred A. Strauss, Psycho-Educational Consultant, Evanston, Illinois, President, Cove Schools for Brain-Injured Children, Racine, Wisconsin; and Laura E. Lehtinen, Psycho-Educational Consultant, Evanston, Illinois; Educational Consultant, Evanston, Illinois; Education Director, Cove Schools for Brain-Injured Children, Racine, Wisconsin. Grune & Stratton, New York. 1947.

This book deals particularly with that child whose brain potentially or originally was normal and then suffered injury prenatally, at birth or in the early postnatal period. It clarifies the picture for those of us who, working with children, find it difficult to explain or differentiate pathologies in the psychosomatic field, the overlapping symptoms found in subnormal children, psychopathies of childhood, physically handicapped children with emotional disturbances, etc.

The book is divided into Part I dealing with psychopathology and Part II with education. In the first division

are sections on anatomy, perceptual disturbances, thinking disorders, testing and diagnosing. The second division is devoted to techniques of educating the brain-injured child in reading, arithmetic and writing. A final chapter is devoted to the brain-injured deaf child.

**EAR, NOSE AND THROAT. Symptoms—Diagnosis—Treatment.** By George D. Wolf, M.D. Assistant Clinical Professor of Otolaryngology, New York Medical College, New York. J. B. Lippincott Company, Philadelphia. October, 1947. Price, \$10.00.

Diagnostic and therapeutic concepts in the specialty of otorhinolaryngology have undergone a remarkable about-face in the past 15 years. New editions of the older texts have made attempts to keep abreast of the newer knowledge, but these efforts have too frequently proven inadequate because the authors (or editors) have been too reluctant to delete those portions containing antiquated or even discredited ideas.

In creating a new text, the author has made a creditable attempt to present the subject in a manner which appeals to the analytic and reasoning faculties of the student rather than one which relies on mere memorization of rules. The text can be recommended for use by the student or general practitioner inasmuch as it provides a maximum of information with a minimum of misinformation.

**PHARMACOLOGY AND EXPERIMENTAL THERAPEUTICS.** By Hamilton H. Anderson, Fumiko Murayama and Benedict E. Abreu. University of California Press, Berkeley and Los Angeles. Price, \$6.50.

This is not a textbook, but rather a collection of brief abstracts of articles in the field of pharmacology and experimental therapeutics, including toxicology, published during the years 1941 to 1946. The book is designed to help bring the reader up to date on work done during the war, when periodical literature was frequently not available to military personnel, or when absorption in war research prevented keeping up on general developments. The book accomplishes its purpose to the extent of orienting the reader. Many important contributions are overlooked however. For example, no mention is made of the use of para-aminobenzoate in the treatment of typhus and Rocky Mountain spotted fever, the information on the new sulfonamides is grossly incomplete, there is a good discussion of thiouracil but propyl thiouracil is not mentioned, benadryl but not pyribenzamine is reviewed, and only an insignificant clinical paper on vitamin P is mentioned whereas many careful experimental papers on vitamin P, and especially on rutin, have appeared in English language periodicals. On the other hand much work on new drugs and poisons is well covered—for example, alloxan, cellulose acetate phthalate (for enteric coating), new anti-malarials, curare, DDT and folic acid. Much new work on alcohol, aliphatic amines, amphetamine, digitalis and its glycosides, heparin, and methyl bromide, to mention a few old remedies and poisons, is described briefly. A large number of compounds of little practical interest, but considerable academic importance, are at least mentioned.

The book is especially valuable because dose is related to effect, not only in man, but also in a large variety of experimental animals. For this reason it is useful to both the clinical investigator and the experimental pharmacologist. The book is useful to the teacher in establishing doses for student experiments.

**DERMATOLOGY IN GENERAL PRACTICE.** By Sigmond S. Greenbaum, M.D., F.A.C.P., Professor of Clinical Dermatology and Syphilology, University of Pennsylvania Graduate School of Medicine, with the collaboration of Lester W. Burket, M.D., D.D.S., S. Gordon Castiglione, B.S., M.D., F.A.C.S., William T. Johnson, M.D., Samuel Lisker, M.D., John B. Ludy, B.A., M.D., Theodore Melnick, M.D. and Herbert W. Wade, M.D. Cloth. Price \$12. Pages 889 with 846 illustrations, 20 in color. F. A. Davis Co., Philadelphia, 1947.

This is a new text written especially "for the busy practitioner, the undergraduate, and for all those who from time to time may require information on the major clinical, diagnostic, and therapeutic facts about a particular dermatosis."

The subject matter is presented in clear, well-spaced type with two columns to a page. The diseases are discussed in alphabetical order with no attempt to group them according to etiology, types of lesions, etc. The illustrations are of good quality but there are practically no photomicrographs of histopathological sections or parasites except in the chapter on cancer.

The subject of Dermatology and Syphilology is covered in a fairly comprehensive manner. The chapter on cancer covers 98 pages and is written by an oncologist rather than a dermatologist. Without desiring to criticize the thoroughness with which such an important subject is treated, nevertheless most dermatologists would be struck by the fact that many of the conditions presented represent serious and far advanced types of cases which dermatologists are not called upon to treat. Many dermatologists as well as others qualified to express an opinion might take exception to the statement that "today it is generally conceded that radiation is usually the primary treatment of choice for lesions about the head and neck," feeling that perhaps electrosurgical procedures such as the high frequency cutting current might be a safer method for the destruction of squamous cell epitheliomas of the lip, neck, face, etc.

Incidentally epithelioma is not listed in the index. The subject is indexed under cancer. There are several other omissions in the index, such as pityriasis alba, lichen urticatus, aphthous, stomatitis, etc. One would expect such a common condition as canker sore to appear in the index either as such or as one of its synonyms. Although not indexed, it is discussed under herpes simplex even though its identity with this condition is still a matter of debate.

In discussing insect bites, the statement is made that "Trombicula irritans (pulex penetrans) is the chigger found in America." The present accepted term for the American "chigger" is *Leptus rileyi*, formerly known as *leptus irritans*, *trombidium* or *trombicula irritans*, etc., which is the six-legged larva of an eight-legged red mite. This has nothing whatever to do with *Pulex penetrans* (now known as *tunga penetrans*) which is a tropical flea and has also been designated as chigoe and jigger.

California physicians will probably take exception to indexing coccidiomycosis under "California disease." They will also note that the disease is discussed under the heading of coccidioidal granuloma and that no mention is made of the fact that the disease usually begins as an acute respiratory infection, is often followed by erythema nodosum-like lesions on the legs and that in only a comparatively few cases do the granulomatous lesions develop. Without mentioning these facts and merely stating that "coccidioidal granuloma . . . is endemic in Southern California" and later that "This disease is, however, usually fatal," gives an impression quite contrary to the facts. This reviewer in a period of 28 years of practice limited to Dermatology and Syphilology has seen only one private patient with coccidioidal granuloma.

The section on fungus infections would have been more useful if the author had described the very simple method of preparing extemporaneous slides of skin scrapings in KOH

and illustrated by photomicrographs the difference between fungi and artefacts. There is no subject in Dermatology more abused than the incorrect labelling of various and sundry conditions as fungus infections without adequate evidence.

Finally, acne vulgaris does not appear in the index. The subject is adequately discussed, however. I am sure that many dermatologists would not agree that the recommended course of eight weekly doses of 75 R units of x-ray was adequate and that "the result of several courses [as recommended] would result in excessive dryness, atrophy and telangiectasis." The recommendation of covering the scalp hair and ears in treating acne by fractional doses of Roentgen therapy seems unnecessary and cumbersome.

The utmost caution should be observed in the use of Roentgen therapy and the best advice would be for the general practitioner not to employ it unless he has had special training in a dermatological center. From the therapeutic point of view many dermatologists would feel that eight treatments of 75 Roentgens each would be a waste of their time and their patients' money inasmuch as five to seven treatments more would be safe and less than that might fail to accomplish the objective. From a medico-legal standpoint it is somewhat dangerous to state that two or three such courses totalling 16 to 24 doses would lead to atrophy and telangiectasia. This is certainly contrary to the general experience. Obviously, one could not give an indefinite number of treatments and practically all dermatologists would agree that a total of 30 doses of 75 Roentgens each given in two or three courses of 10 to 15 doses each and separated by intervals of 6 to 12 months would be a safe maximum.

In spite of the above criticisms this book will doubtless find a place in the library of many physicians because of its comprehensive coverage of the subject and its alphabetical arrangement of diseases, which makes for easy reference.

\* \* \*

**GIFFORD'S TEXTBOOK OF OPHTHALMOLOGY.** By Frances H. Adler. Revised Fourth Edition. W. B. Saunders Company, Philadelphia, 1947.

Dr. Adler is to be thanked for his splendid contribution to our medical literature by the continuing of Dr. Gifford's work.

The book is a revised edition of Dr. Sanford Gifford's textbook which was well received in the past.

The book primarily was designed for medical students and general practitioners, but much of the material will be of benefit to the ophthalmologist.

The book is very well organized as to subject matter, and the illustrations in both color and black and white are excellent. An ophthalmologist wishing to be an instructor could derive great benefit from the organization of the subject matter in this book.

There are five chapters in the book namely, four, five, seventeen, nineteen, and twenty which should be read not only by general practitioners but by anyone interested in ophthalmology.

\* \* \*

**400 YEARS OF A DOCTOR'S LIFE.** By George Rosen, M.D., and Beate Caspari Rosen, M.D. Henry Schuman. Price \$5.00.

This interesting olla podrida of medical lives consists of a series of abstracts from the biographies, letters and writings of some 80 physicians, ranging from Theophrastus von Hohenheim to Gordon Seagrave. The authors have chosen passages which they regard as most revealing of the basic character and qualities of the man or woman in question . . . largely autobiographical in origin.

The anthology is arranged in ten sections, ranging from "Early Years," through "Medical Student," "Teaching" and "Political Days" to "Reflection on Life and Death." Many

of the best abstracts are already well known to students, e.g. those of Paré, Sims, Osler, Zinsser, etc. Some reflect the repetitiousness of human experience. For example, from Jean Chaptal:

"One day Fressines came to tell me that a cadaver had just been delivered to his particular amphitheater. We went there immediately; I found the body of a young man who had died four or five hours earlier of an inflammation of the lungs. I recognized this young man as having helped me pick up the balls when I was playing pall-mall, and this circumstance made me feel ill at ease. Nevertheless, I set about dissecting him, but at the first stroke of the scalpel on the cartilages that connect the ribs with the sternum, the cadaver placed the right hand on the heart, and the head moved feebly. The scalpel fell from my hands and I fled in fright. From this moment on, I abandoned the study of anatomy."

Some of the most appealing lines are those of Albert Schweitzer in which he explains why he decided to become a medical missionary, how he happened to choose Equatorial Africa as a milieu, and the source of his initial support. A Christian physician.

The authors are medical graduates of the University of Berlin, and have edited "Ciba Symposia," the "Journal of the History of Medicine and Allied Sciences" amongst other interests. The book runs slightly over 400 pages, is neatly finished and can be recommended to all who have a bedside table and a lamp.

\* \* \*

**CALCIFIC DISEASE OF THE AORTIC VALVE.** By Howard T. Karsner, M.D., and Simon Koletsky, M.D. J. B. Lippincott Co., Philadelphia.

This monograph represents the most complete and up-to-date discussion of the subject available in the literature. The authors present convincing evidence of the rheumatic etiology of calcific disease of the aortic valve. The etiology of this condition has been the subject of controversial opinions in the past and the study presented in the monograph has been greatly needed. Karsner and Koletsky analyze 200 autopsied cases of calcific aortic valve disease with a critical discussion of the clinical features, pathologic anatomy and emphasis on the gross and microscopic stigmata of rheumatic cardiac disease. The authors conclude that definite evidence of rheumatic disease was found in 196 of the 200 cases; in one the evidence was entirely negative while in three the evidence was suspicious.

The scholarly approach to the subject, the well-known authoritarian character of the authors, the statistical data and the excellent pathologic discussion all combine to make this book most valuable. It can be highly recommended to all interested in the subject, and should prove of especial interest to pathologists and cardiologists.

\* \* \*

**SYMPTOMS AND SIGNS IN CLINICAL MEDICINE.** By E. Noble Chamberlain. Fourth Edition. The Williams & Wilkins Company, 1947. Price \$8.00.

This book is written by an English author primarily for the student who is beginning his work in clinical medicine. As such it inevitably must be compared with American textbooks on physical diagnosis. It goes beyond the usual text on physical diagnosis in that the author has classified symptoms and signs into the various systems of the body and has attempted the further step of discussion of these signs and symptoms as part of some of the commoner or more important pathological diagnoses. He also mentions briefly certain special laboratory or instrumental investigations which may be used to confirm the impression gained by the examiner. In addition, there are short chapters devoted to medical operations and instrumental investigations, radiology and clinical pathology.

In the reviewer's opinion this book compares very favorably with the various standard American texts. In general, it is clearly and concisely written. The paper and printing are good. The black and white illustrations, of which there are a great many, are fairly good; the color photographs are poor; the diagrams are excellent. It is not as complete as some American texts but it has the merit of brevity. And the presentation of signs and symptoms in relation to disease complexes is one which will make the student learn faster.

Too much space, proportionally, has been given to the nervous systems—110 pages, or almost one-third of the total number, exclusive of the special chapters. The cardiovascular system gets only 46 pages and the respiratory system 41. In contrast, the thirteenth edition of Cabot and Adams' *Physical Diagnosis*, a book of 833 pages, allots the nervous system only 67 pages whereas the cardiovascular system gets 171 and the respiratory system 123 pages.

The author's recommendations with regard to special investigation and the chapters on investigations and on clinical pathology require revision to be of practical use to American students. Such instruments as Dudgeon's sphymograph and Mackenzie's polygraph belong to the history of medicine and to any cardiologist who may wish to use them but do not deserve description in a beginner's text. Nor is there practical need for one and a half pages devoted to the estimation of urea in the urine by Little's Nitrometer. Especially when electrocardiography must be contracted into four and one-half pages.

A few passages which the reviewer considers bad may be mentioned. On page 47, after correctly stating that Koplik's spots are located on the buccal mucous membrane the author exhibits a colored plate (borrowed from French's index of diagnosis) which show them on the lower lip! The description of angina pectoris and its differentiation from coronary thrombosis are done in a vague and confusing manner, reminiscent of the knowledge of 35 years ago (pp. 97-98). On page 101 the edema of hypothyroidism and of lymphatic blockage is wrongly ruled not edema but "more solid swelling!" On page 105 the student is advised "if the index finger of each hand is placed on the radial pulse and an attempt is made to obliterate this with the upper finger, the disappearance of the pulse can be noted by the lower finger . . . in cases where instrumental estimation seems unnecessary." The discussion on heart murmurs and their causes is confusing as is such a remark as "allergy also causes a large flabby tongue" (p. 159).

\* \* \*

**ATLAS OF BACTERIOLOGY.** By R. Cranston Low, M.D., F.R.C.P.E., Bacteriology Department University of Edinburgh, and T. C. Dodds, F.I.M.L.T., Laboratory Supervisor to the Department of Pathology, University of Edinburgh. 168 Illustrations of which 167 are in color. The Williams and Wilkins Company, 1947. Price \$8.50.

This manual consists of colored illustrations portraying the colonial appearance of bacteria on culture media and in stained smears. Direct color photomicrography has been utilized wherever possible but technical difficulties required the preparation of water color drawing in most instances.

The book is obviously a labor of love on the part of the authors and has been beautifully and meticulously prepared and printed. In spite of this fact, it is impossible to recommend it for the purpose for which it was intended: the instruction of the undergraduate in bacteriology. The most satisfactory drawings of bacteria bear little relationship to their actual appearance and cannot be substituted for experience with stained smears and the microscope.

The book was shown by the reviewer to a number of medical students and technicians who had recently completed courses in elementary bacteriology. All agreed that it would have been of no value whatever to them.

**SYNOPSIS OF NEUROPSYCHIATRY.** By Lowell S. Sel-ling. Second Edition. C. V. Mosby Co., St. Louis, Mo., 1947. 561 pages.

The second edition of this book has been enlarged and now includes a chapter on psychosomatic medicine and psychiatric therapy. Other chapters have been revised, and paragraphs dealing with military aspects of the subject have been deleted. The work is still merely a guide for students and practitioners and should not be considered as a textbook. It could serve as a useful outline for students who wish to review the subject, if supplemented by more complete volumes.

\* \* \*

**BIOCHEMISTRY FOR MEDICAL STUDENTS.** By William Veale Thorpe, M.A. (Cantab.). Reader in Chemical Physiology, University of Birmingham. Fourth Edition. The Williams & Wilkins Company. Price, \$5.00.

This brief survey of biochemistry would serve as an excellent digest of present knowledge of the subject for the practicing physician, as well as the medical student. The point of view of the author in fitting quantitatively chemical mechanisms "against the background of the *normal intact animal*" before they are accepted as correct, is certainly commendable. Truly, as the author states, "The connection between Biochemistry and Human Physiology is such an intimate one that the two subjects must be studied side by side." By presentation of his subject in a dynamic manner, the author has given life to the chemical processes occurring in living tissues.

\* \* \*

**PHYSICAL MEDICINE IN GENERAL PRACTICE.** By William Bierman, M.D., with a chapter on Medical Rehabilitation by Dr. Sidney Licht. Second Edition. Paul B. Hoeber, Inc. Price \$8.00.

The material in this book is a revision of that of a previous volume with the addition of new information accumulated since the original publication. It contains an adequate discussion of the agents used in physical medicine and the descriptions are clarified by many well chosen excellently done illustrations.

There is a section on occupational therapy and another on medical rehabilitation which makes use of ideas developed during the last war by the military medical services.

The latter part of the book describes physical procedures used in the treatment of diseases of the different systems of the body and this section is also very well illustrated.

The appendix contains the specifications for physical therapy equipment established by the Department of Hospitals of the City of New York and should be of aid to those wishing advice on how to purchase physical therapy equipment.

This book should be of value to those using physical medicine procedures in the treatment of patients.

\* \* \*

**METHODS OF DIAGNOSIS.** By Logan Clendening, M.D., F.A.C.P. and Edward H. Hashinger, M.D., F.A.C.P. The C. V. Mosby Company.

This book is written in the easy style characteristic of the senior author and has many interesting features, not the least of which is the use of historical example to emphasize his points. It is a highly personalized book and quite dogmatic—features that will cause considerable controversy. The authors dismiss with a sentence diagnostic features that most experienced observers feel are of significance. For example (pp. 303) "distention of the veins of the neck never meant anything definite to me as far as the heart is concerned." Cardiologists who emphasize the importance of increased venous pressure can hardly agree with this statement. Equally difficult to accept are statements on diagnosis

such as the following: "The facies of the patient with anginal failure is equally striking. It has never been formally described in the literature but every clinician is familiar with it, even if subconsciously . . . It really shows best in the back of the neck. . . . A curious indefinite pallor, not cachexia, but resembling cachexia as the mist resembles rain, an emaciation of the insertion of the sternomastoid, and the trapezius as if the excess fat and only the excess fat had been dissolved away from around the skin overlying the tendons." Again (pp. 317) "thrills are nice tags but not very important in diagnosis. They are for connoisseurs." Another statement (p. 318), "I do not believe there is anything to be gained from percussion of the heart." On page 405, the authors state: "I do not know what influenza is. I know what they say it is, but that is not the same thing."

The author's habit of telling a story to describe a condition often is emphasized to the exclusion of a definite description of the disease state under discussion. For example, when discussing massive postoperative collapse of the lung (pp. 428), no diagnostic data at all are given. The details of diagnostic procedure are scanty in many sections of the book.

Another criticism that seems appropriate is the absence of many modern references. Although the book was published in 1947, references later than 1942-43 are rare. In the discussion of atelectasis mentioned above, the most recent reference quoted was 1924.

The book contains much data and many interesting references; nevertheless, it cannot be recommended as a modern accurate discussion of the current thinking on methods of diagnosis.

\* \* \*

**RADIUM DOSAGE.** The Manchester System. Edited by W. J. Meredith, M.S.C., Christie Hospital and Holt Radium Institute, Manchester. Williams and Wilkins Company, Baltimore. Price, \$4.50.

Radium therapy has become one of the accepted procedures for dealing with many types of neoplasms but to persons who are not trained in the use of radium, the discussion of various steps needed to arrive at correct dosage is enlightening. In clinical therapeutics, dosages are based on the weight of the drug per unit of body weight, but in radium therapy dosage is dependent upon the amount of radium with the correct distribution and time factors in relation to the volume of tissue to be destroyed.

While this book is not written for the general practitioner, the section on the clinical aspects of radium dosage may be read by him with interest and profit so as to familiarize himself with the problem of dosage methods. It really is a collection of articles appearing in the British Journal of Radiology written by prominent British clinicians and physicists from the Holt Radium Institute. It is an exposition of the experimental work and its clinical applications carried out over the last 15 years. Radiologic literature contains innumerable papers, largely emanating from the Memorial Hospital in New York, Radiumhemmet in Stockholm and the Curie Institute in Paris covering the same field, but they are scattered in technical journals, many in foreign languages, throughout the world. Here one gets everything in one small book, which for simplicity and clarity of presentation is unsurpassed, although a fundamental grounding in higher mathematics is necessary to understand the physical aspects. The illustrations and tables are easily interpreted, thus simplifying dosage calculations. The aim, of course, is to get a homogeneous radiation, adequate in amount capable of destroying neoplastic tissues, while at the same time conserving normal structures. I believe that the authors have extended our knowledge on the accuracy of dosage but its clinical application and success must rest on the clinical experience of the physician himself in applying its principles to the individual patient.

In my opinion this book should be on the desk of every radiotherapist as a dependable reference. For students and residents in therapeutic radiology, who are beginning their life work, it should be on the list of required reading. In other words, it should be a "must" book.

\* \* \*

**ILLUSTRATIONS OF REGIONAL ANATOMY.** By E. B. Jamieson. Seventh Edition. The Williams and Wilkins Co., Baltimore, Maryland, 1947. 320 pages. Price, \$20.

This set of anatomical illustrations comprises seven sections, each devoted to a region of the body. The volumes are of a handy size for use in the dissection room. The plates are on loose-leaf pillars so that the student has the choice of removing pages for inclusion in notebooks, of keeping them in the original covers, or of regrouping them to suit a desired plan of study. The illustrations are multicolored, for contrast, making it a simple matter to study the composite anatomy of a given region. A number of minor improvements have been made in this, the seventh edition. The set ranks among the best of current diagrammatic illustrations of anatomy, and should be included in the library of anyone teaching the subject.

\* \* \*

**A REVIEW OF "DISEASES OF THE NOSE, THROAT AND EAR."** By William Lincoln Ballenger, M.D., Howard Charles Ballenger, M.D., Assisted by John Jacob Ballenger, M.D. Lea & Febiger, Philadelphia.

The advertisement and prospectus that was sent out regarding the Ninth Edition carries the usual assurance of complete revision and great improvement. In general this is true. There is some question in regard to the statement that the physician "can turn to it with confidence that he will find adequate and correct information on every medical and surgical problem that may arise."

In reviewing the book certain things stand out in one's mind. An increased amount of space has been given to rhinoplastic reconstruction. It is now presented in a manner that demands either abridgment or further elaboration to be of any real value.

In regard to criticism of complete revision, one might mention the lack of consistency in using the newer terminology for the bacteria and other etiologic agents of disease. The book contains several poor illustrations that have been carried over from previous editions. This is particularly true in regard to the illustrations of the Lynch intubation speculum (Figure No. 255). No mention is made of the more modern self illuminated laryngoscopes wherein the handle acts as a container for the batteries.

It is pleasing to see that in the successive editions the indications for turbinectomy are becoming less and less evident and that the amount of space devoted to the technical phases of the procedure is markedly diminished. It is hoped that the future editions may even eliminate the subject. The portion of Chapter LIII dealing with surgery of brain abscess should be brought up to date or eliminated.

A number of the procedures and techniques as outlined do not necessarily agree with the present practices employed by a large per cent of active Otorhinolaryngologists or with the teachings as offered at present by the accredited schools in Otorhinolaryngology. Specifically, the use of cocaine flakes is not nearly as widespread as one would assume from this text. Likewise, the use of cotton pledgets soaked in 10 per cent cocaine that are to be left in the nose for the production of anesthesia is becoming less in favor.

The chapter on the general and local treatment of sinus infections is more or less standard and routine. It is interesting to note that the subject of tonsillectomy under general anesthesia is almost entirely devoted to the use of the Ballenger-Sluder tonsillectome. Very little space is devoted to the

dissection and snare method. The chapters devoted to diseases and surgery of the ear are acceptable. The final section on bronchoscopy, direct laryngoscopy, esophagoscopy and gastroscopy is uninteresting. It is an abridgment of the works of the contributors that is not particularly illuminating to the uninitiated and of no value to those who have pursued work in those fields.

There is opportunity for some criticism in regard to the binding. The volume sent for review shows evident signs of wear after the short period of time it took to go through the book page by page. "Diseases of the Nose, Throat and Ear" by Ballenger has been and should look forward to being a standard text in Otorhinolaryngology. With this thought in mind the necessity that the physical constituents of the volume be of sufficient caliber to stand up under the stress and strain of daily use should be evident.

\* \* \*

**AN INTRODUCTION TO BIOCHEMISTRY.** By William Robert Fearon, Third Edition. Grune and Stratton, New York. 1947. Price, \$6.00.

The author of this textbook is professor of biochemistry at the University of Dublin. It is well written, and most of the topics discussed have been brought up to date. The style of the text matter is not lively, but the author has enlivened his book by frequent use of quotations from poets and other men of letters. The point of view is distinctly that of a chemist rather than of the chemical physiologist; the known chemical reactions in the body, such as intermediate carbohydrate metabolism, are only superficially discussed whereas 32 pages are devoted to the chemistry of identification and structure of carbohydrates. The book is of more value to the graduate student and worker in biochemistry than to the first year medical student or practicing physician.

\* \* \*

**THE THEMATIC APPRECEPTION TEST.** By Silvan S. Tomkins, Ph.D. Research Associate, College Entrance Examination Board. The Grune & Stratton Company. Price, \$5.00.

This is a study of the clinical application of a psychological test in which the subject is required to relate a story suggested by each of a number of pictures presented to him. Although an objective method of scoring the test has been sought for, it was the impression of the reviewer that the goal was not yet at hand. The interpretations given of the subjects' stories were obviously colored by psychoanalytic concepts, so much so as often to tax one's credulity. Again, the wisdom of such ventures by the psychologist into clinical psychiatry may be questioned. The book is of some interest to the psychiatrist, of greater interest to the psychologist, and probably of no interest at all to the physician.

\* \* \*

**BRIEF PSYCHOTHERAPY.** A Handbook for Physicians on the Clinical Aspects of Neuroses by Bertrand S. Frohman, M.D., with the collaboration of Evelyn P. Frohman. Lea and Febiger, Philadelphia, 1948. Price \$4.00.

This book is aimed at the non-psychiatric practitioner of medicine, whether he be surgeon or internist. It presents in simple terms that all may understand a clear delineation of the more common mental mechanisms, as well as methods of treatment of the illnesses they produce.

The author, although trained in psychoanalysis, has broken away from the orthodox dogma which in his opinion has greatly curtailed the usefulness of this psychological school. He gives orthodox analysis, with its months and years of tedious exploration of the unconscious, full credit as an instrument of research. However, he feels that enough has been learned so that the principles of human behavior so discovered may be put to use in a much more brief and

expeditious therapeutic approach, with consequent extension of their benefits to a much greater number of patients.

No doubt for this attitude he risks excommunication by the old-line analysts, a punishment that one may assume is not too severe. Equally, the superficiality of his treatment of some of his case histories will displease many psychiatrists. However, in a presentation of this kind over-simplification is entirely justifiable; without it certainly the point to be made would not be put over with any degree of success.

Throughout the book there is, to this reviewer's thinking, a bit too much and too obvious "sugar coating" to make the message palatable to the physician; possibly the lack of subtlety will be least objectionable where the message is most needed. On the other hand, an occasional "interpretation" seems rather far-fetched even to one of psychiatric training, and might have been omitted without loss to the book.

In all, this is a book which should be read by every practitioner of medicine, certainly by every medical student, and would even do no harm should it fall into the hands of an occasional patient.

\* \* \*

**HANDBOOK OF DIAGNOSIS AND TREATMENT OF VENEREAL DISEASE.** By A. E. W. McLachlan. Third Edition. Williams & Wilkins Co., Baltimore, 1947.

This handbook is compiled from the author's lectures to undergraduate and postgraduate students at the University of Bristol and is published as a guide to the general practitioner in the recognition and treatment of venereal disease. The first edition appeared in 1944 and has had two revisions, largely because of the changes in therapy that have resulted from the introduction of penicillin.

Slightly more than half of the 362-page book is devoted to syphilis. The clinical descriptions are brief and there is evident the usual overemphasis on the trivial phases of the infection that is common in textbooks on dermatology. The really important aspects of the disease are brushed over very casually. For example, the clinical description of the primary and secondary stages consumes 60 pages, nearly one-third of the space devoted to the disease as a whole, whereas neurosyphilis, including its treatment, is condensed to 24 pages and cardiovascular syphilis to ten.

The section on the treatment of early syphilis includes a discussion of antisyphilitic drugs, the reactions they produce and the treatment of these reactions. No mention, however, is made of BAL which has revolutionized the treatment of arsenical reactions within the last few years.

In the treatment of early syphilis, prolonged, intermittent therapy with trivalent arsenic and bismuth is evidently preferred, with more intensive schemes and penicillin thrown in as alternative methods. This is not in accord with the prevailing American opinion. In most types of late syphilis, the treatment recommended is much more prolonged than seems necessary and is increased without justification when the Wassermann remains fast.

Gonorrhea is considered more extensively than syphilis, with overemphasis on the physical details of the various procedures involved in examination and treatment. In treatment, penicillin is given a subsidiary role to the sulfonamides, and

mechanical therapy in the form of irrigations and various types of instrumentation is utilized to what seem an unnecessary degree. Several other minor venereal diseases are discussed briefly.

This handbook emphasizes the immediate care of the infectious stages of the venereal diseases and omits many of the more fundamental aspects of these diseases. It is probably of some value from the standpoint of venereal disease control but it is too superficial to be of much use in solving any of the more complex problems that are presented by so many patients with infections in this field.

\* \* \*

**SEXUAL BEHAVIOR IN THE HUMAN MALE.** By Alfred C. Kinsey, Professor of Zoology, Indiana University, Wardell B. Pomeroy, Research Associate, Indiana University and Clyde E. Martin, Research Associate, Indiana University. W. B. Saunders Company. Price \$6.50.

This book is a progress report from a case history study on human sex behavior. It is a fact-finding survey on what people do sexually and what factors account for differences in sexual behavior among individuals, or various groups. There is no discussion as to what people should do.

Although not a medical text in the true sense of the word, it is of value to the general practitioner and specialist, as well as to those interested in science, social work, education and in human conduct generally. Rarely does a scientific study of human behavior create sufficient interest among the laity to make the first page of the *New Yorker*.

Over 12,000 individuals—criminals, clergymen, teachers, students, prison inmates, men of various ages and position—were interviewed and urged to tell all. The authors expect to interview 88,000 more before they complete their study. Kinsey's tabulated charts show that in certain groups 85 per cent of males have pre-marital intercourse; in the higher intellectual groups this figure drops to 66 per cent. Not more than 62 per cent of the upper-group male's outlet is derived from marital intercourse by the age of 55. Approximately from 20 per cent to 45 per cent of males have extra-marital intercourse; the higher intellectual groups and those of lower ages usually occur in the lower percentage groups. At the age of 20 years, 40 per cent have had intercourse with prostitutes; at 45, 70 per cent. About 98 per cent of males who have not gone beyond grade school have sexual experience before marriage, while only 84 per cent of the high school level, and 67 per cent of the college level is involved.

There is little difference between young males of today and those of ten years or 20 years ago. Statistics show that the war made little difference in sexual behavior; male habits, Kinsey believes, are usually fixed by the age of 16. Men acted about the same way in the armed forces as they would have as civilians; uniforms and the lack of privacy in military life merely made their acts more conspicuous.

Kinsey makes no attempt to revise the sex behavior of the male, but he does think that science should revise its classification of the normal and the abnormal in sexual conduct: "In no other field of science have scientists been satisfied to accept the biologic notions of ancient jurists and theologians, or the analyses made by the mystics of two or three thousand years ago."

